

## ENGINES FOR SALE

GARDNER 5LX 55 hp complete with 21 hydraulic box, best exchanger, oil cooler, marine manifold etc. £1,250. One. Telephone: York 761862.

K4 KELVIN 68hp fair condition, also K3 and K4 propellers. Telephone: Penryn 74241.

KELVIN Gleniffer D82 24hp old but reliable. Ideal for spares, offers telephone: Middlebrough 85312.

## RECONDITIONED MARINE DIESEL ENGINES MAKE SENSE

GUARANTEED Engines at almost half the price of new engines, 30-150hp.

OR build your own from high quality marinization parts.

For details:

## VIKING MARINE INTERNATIONAL

PLAIN ROAD, FOLKESTONE, KENT.  
Telephone: 57127. Telex: 9652K1.

## FOR SALE PERKINS T/6354

145hp, gearbox 50g Warner 111, regularly serviced. Petrol engine, any trial, excellent condition, £2,000. Telephone: Newhaven 6143 or 3854 after 6 pm.

TWO K4 Kelvin marine engines and gearboxes 60hp all complete. Two Kelvin 21in. props, 9ft. long and propellers, plus steering gear, 7hp brake pump in good order, ship being broken up at Pailstone harbour. Contact Mr. S. L. C. Perry at Pailstone 330 or Midcote Norton 413740.

SUZUKI outboard engines, economical, rugged, reliable, exceptional performance, lowest prices. Range 4, 7, 9, 14, 10 and 25hp, 25-amp 25hp 65hp, 10hp 55hp, 9hp 44hp including VAT delivered. Remote control stocked, compare with any other makes offered. Illustrated details Tradeview, Ramsey, L.M.M.

GARDNER, Ford, BMC and other marine engines, over 50 units new, re-hull, secondhand in stock. 3-30hp in sensible prices. Send for price list. Helwether Engineering, Preston Mill, St Abington, Oxon. Stevenage 567.

NEW 12hp FARYMANN horizontal diesel engines, similar Perkins 11. 28hp, c/w 21 reduction gearbox, motor controls, cables, electric start, alternator, instrument panel, tools, manuals etc., current list price approx. £1,250. For sale at £800 including VAT and delivery Liverpool. de-patched anywhere at cost, details Tradeview, Ramsey, Isle of Man. Telephone: 0124 814284, evenings 814285.

WANTED: Large quantities of lobster, crawfish, scallops, winkles, clams (purple), etc. Best prices paid. I'm collecting in Plymouth through Plymouth-based French boat La Jangouste, 29211 Hooport, France.

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## MISCELLANEOUS

800 YARDS fishing rights, river Vene, nr. Wellingborough, Northants for sale. Particulars from Postock, 10(d) Lino Street, Bedford. Telephone: Bedford 66366.

WANTED SPARES for elderly National diesel. 4MYM. Contact Mike Cress on Slough 20709 daytime only. Or write to 336A 8th Road, Chippenham, Berkshire.

NECO 12 volt capstan or similar. Telephone: Clacton 27088.

WANTED 10 cwt. or one ton trawl winch. 22 Roman Road, Weymouth 71063.

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## WANTED S/H transmitter and receiver. Box No. 154.

WANTED water cooled manifold, suitable for Leyland 400. Telephone: Hestonpool 86364.

WANTED large quantities of whale, pos, new or secondhand. Box No. 167.

WANTED half/one ton double drum with power unit, Lloyd, 27 Syr David's Avenue, Cardiff. Telephone: 36366.

GEARBOX D/D suit 140hp 2000 r.p.m. diesel. Telephone: 061-6321947 evenings.

FISHMONGER with five shops requires direct supplies from owner skipper, please send sample, price list to Box No. 162.

WANTED. Small smoking unit. Quantity of wet tin, steel. Telephone: Great Wenham 310319.

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## FISHERMEN'S MISSION

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# £13,261 - 'TOP' TRIP FROM ICELAND

FLEETWOOD trawlers returning from the Iceland cod war zone last week all made bumping great losses on their voyages — a really stark contrast to the record-breaking £49,012 return of the stern trawler *Jacinta* which worked off Greenland.

The top Iceland ship was *Moretta*, which could only manage a £13,261 grossing from 745 kits. *Boston Explorer* headed in to gross £12,889 and *Wyre Gleaner*, £11,653.

It was not all gloom, however, in the near water section. The 109ft. *London Town* (Skipper Jack Kelly)

had an excellent haddock catch. The vessel landed a total of 428 kits, including 120 of cod, 15 of plaice, 200 of haddock, and 15 of plaice, which sold for £8,204.

Not far behind was *Andrew Wilson* (Skipper Fred Thompson) which made £7,900 from 401 kits, including 230 of cod, 10 of plaice, five of haddock and 65 of cod.

The vessel worked the west of Scotland area. In the pocket trawler section *Susan Bird* had one of the outstanding catches. She landed 282 kits, including 110

of cod and 130 of cod, which sold for £1,274.

The small wooden trawler *Gird Daria*, skipper-owned by Skipper Jack Doherty, kept up her usual consistency with a catch from the North Channel area. The vessel landed 82 kits, including 17 of haddock, 14 of cod, 11 of whiting and 17 of roker, which sold for £2,801.

There were different fortunes for the pocket stern trawler *Resound* (Skipper John Banks) which on her previous trip made a record grossing for her owners, J. N.

Ward and Son. With a voyage being blighted by weather, she landed only 2 kits, including 12 of haddock, 15 of haddock and 15 of roker, which sold for £1,274 — a disappointing return.

It had been hoped that near water trawlers would this time have hit the cods in Morcambe Bay and the Carlisle area but, as yet, no big catches of the variety have been landed. There are reports, however, that trawlers have been finding encouraging quantities.

There has been considerable rather than outstanding demand for cod. The price appears now to have found a level at between 20s and 22s a kit. That figure shows that prices have not kept pace with rising costs. Not long ago cod was up to more than 230s a kit.

## Jack Mawer

## OBITUARY

**SKIPPER** Jack Mawer, outside manager to Consolidated Fisheries Ltd. of Grimsby from 1947 to 1968, has died aged 69 after a long illness.

He spent very nearly all his working life with Consolidated, going into the industry in the 1920s and gradually working his way to the top.

His first command was *Corbiner* in 1931 and he made such rapid progress that he was generally accepted as one of the company's top skippers by the mid-1930s, being given charge of some early 'foot-baller' steamers like *Arsenal* and *Derby County*.

In 1938 he took the old *Notts County* as new end, after the war, skippered *Norwich City* until he took up his shore appointment. However, he still did the odd relief trip and was last at sea with *Arsenal* in 1959.

Skipper Mawer will probably best be remembered for his daring exploits when he served as a skipper- lieutenant in 'Herry Tete's' Navy (Royal Naval Petrol Service) during the last war.

In August 1941 he was involved with the capture of the

German submarine U — 570 which had surrendered to a Lockheed-Hudson patrol plane after an aerial depth charging bombardment off south Iceland.

It was feared the Germans would scuttle their vessel, but Jack Mawer told them he wouldn't pick them up if they did! Eventually the old *Northern Chief* got her to Iceland and she was put back to sea as *HMS Graph*, the only U-boat in Naval history to sail under the White Ensign.

At Dunkirk Skipper Mawer again distinguished himself making the cross Channel trip six times in the old Lowestoft drifter *Lord Howe* to rescue over 1,500 troops.

Later, when in the Mediterranean, he sneaked into La Spezia and stole an Italian midget submarine under the enemy's noses and successfully got it to a British destroyer, despite heavy gunfire.

He leaves a wife and married son.

**SKIPPER** Grenville Phillips has died at Milford Haven aged 48

after an illness of some weeks.

Sum of the late Skipper Jack Phillips MBE, he went to sea on leaving school and became one of the port's youngest skippers.

He came ashore for some years to run his own fish business but returned a few years ago and has since commanded several vessels, mainly for Norrard Trawlers. His family has long-established links with Milford Haven's fish trade and his father was one of the most successful skippers in the local industry.

## COMMENT

IN THIS week's issue of *Fishing News* we introduce a new service. This takes the form of a quarterly supplement which reaches beyond the bounds of catching fish into the selling, preparation and handling of it as a product.

In today's highly-competitive food market the consumer's taste for fish grows more selective, and the interest of the catcher becomes more entwined than ever with those who deal with it once it is caught. Our aim in *Fishing News Processing and Marketing* is to reflect this trend.

Perhaps the best example of this common interest between the catching and the short-based industries is contained in the coverage we give this week to a pilot scheme being set up by Stornoway, aimed at getting a vast new fish resource accepted as a product for the food tables of Britain. Since the peak days of the horring, blue whiting is probably the biggest fish stock adjacent to our coast yet known.

The experimental work on blue whiting is proceeding on two levels: one aimed at establishing an industrial fishery and the other at the production of fillets.

While the setting up of an industrial fishery would give much needed stability to catching operations, it is to the success of the fillet industry that fishermen will be looking. To fish for the meal plant at intervention prices is no way to make a good living. The big price is the fillet, and the vast frozen food market it could open up.

## fishing news

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March 26, 1976

## PATROL BOAT CUTS 'LEGAL' NETS

The Ministry of Agriculture, Fisheries and Food has refused to intervene in an east coast fishing row.

This was revealed by salmon fishery owner John Barber of Goswick, near Berwick, when nets belonging to fisherman Bob Hope of Tweedmouth were ripped by a River Tweed Commission fishery protection vessel.

Mr. Barber, who leases a section of his fishery to Mr. Hope, said the Department had declined to intervene because the area is the responsibility of the Tweed Commissioners.

The protection vessel was on patrol when the nets were slashed, causing £450 worth of damage, but Mr. Hope insists his nets are legal.

Group Captain Proudlock, Superintendent of the Commissioners, said: "I am carrying out an investigation and hope to establish whether the net was anchored to the shore or the sea bed. Bags nets, such as this, which are not anchored to the shore are illegal."

## NEW SEINER BOSS

FRED Harrison has been appointed managing director of Grimsby seiner owners and agents A. E. Richardson & Co. Ltd. by the parent company, Christian Salvesen Ltd.

He succeeds John Richardson who recently resigned.

Mr. Harrison has spent all his working life on the Grimsby fish docks and, before his new appointment, was the senior executive director at Richardson's.



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# Big Peterhead boats go for shrimps

At Peterhead last week three large vessels started trawling for shrimps in the North Sea.

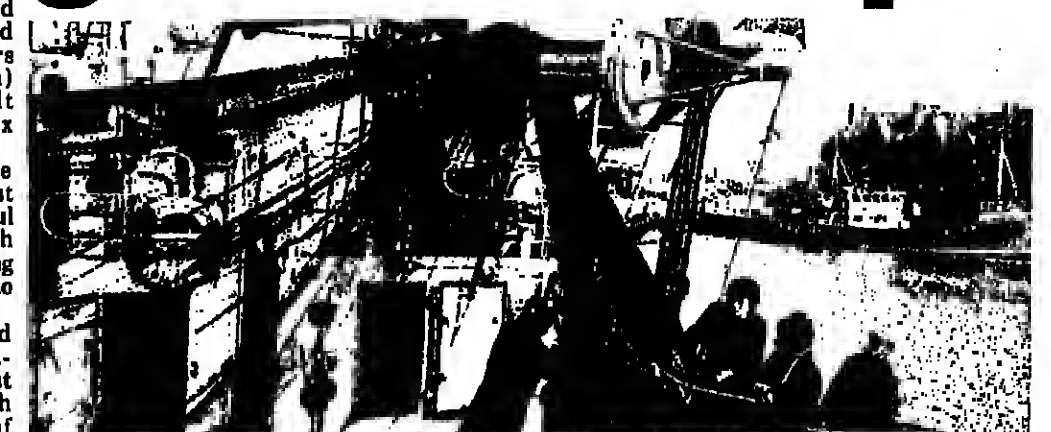
They are the 88ft. and 600hp vessels *Starlight* and *Constant Friend* (skippers Alex Baird and Bruce Thain) and the Norwegian-built *Brighter Dawn* skipper Alex Morgan.

The three vessels, among a number which have just returned from a successful sprat fishing season off north east England, will be fishing for shrimps under contract to Rothess Seafoods Ltd.

*Constant Friend* and *Starlight*, two Tynesdrift-designed vessels built last year by John R. Hepworth of Peul and Cubov Ltd. of London respectively, took delivery of their new shrimp nets last Friday.

Made by N. C. Normande Vahlinder of Skagen, in Denmark, they are possibly the highest shrimp nets being used by British vessels.

Skipper Thain of *Constant Friend* told *Fishing News* that the nets had 1,600 meshes around the fishing circle, as against the 1,400



Going aboard *Constant Friend* is one of the biggest shrimp nets used by a British vessel.

meshes normally used by the less powerful boats.

The boats are planning to fish on the Fidon grounds, some 80 to 100 miles off Peterhead, where shrimps are plentiful at this time of year.

Skipper Baird of *Starlight* said that about 20 Danish boats had been on the grounds recently.

He said that, as it was the first time that *Constant Friend* and *Starlight* had fished for shrimps, they would just have to see how they got on using the bigger nets.

Skipper Baird has fished successfully for shrimps in former years.

It is thought that more Peterhead boats may switch to shrimp trawling when they return from sprat fishing.

## MEAL FIRM CUTS BACK

HULL Fish Meal and Oil Co., based at St. Andrew's dock, is to cut back its workforce of 164 people due to the decline in local trawling and fall in offal.

It is not known how many people will be made redundant but the number will be minimal.

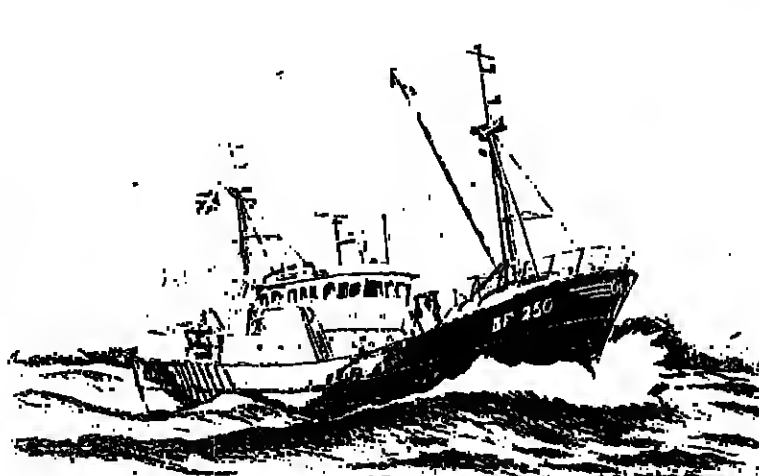
Peter Cook, general manager, said some redundancies are inevitable in view of the decline of the industry which had led to reduced amounts of raw materials for conversion into by-products.

The Highland Planning Committee has sent a telegram to Fisheries Minister, Fred Peart, in which it states it is backing the Scottish Fishermen's Federation and the Herring Industry Board for a 100-mile fishing zone for Britain's exclusive use.

## 100-MILE LIMIT

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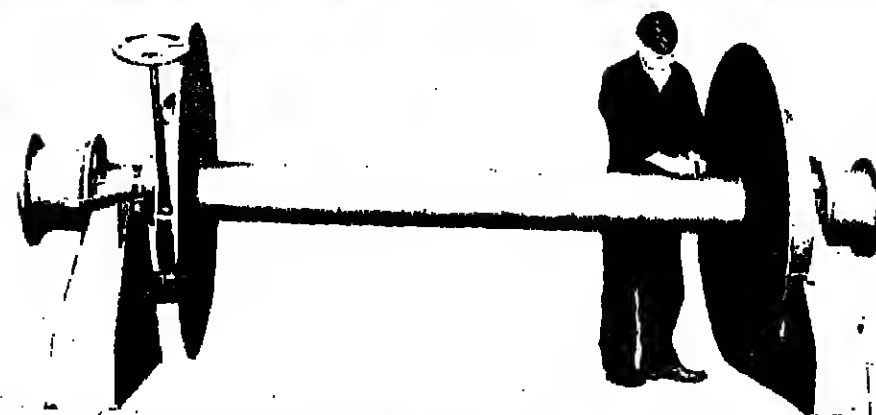
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# Mackerel lining —the beginning of the end

**THE WINTER** Cornish mackerel lining season which has now drawn to a close will surely be remembered as the beginning of the end for the small boat fleet.

The season began with heavy fishing on small and small/medium fish in September, but buyers were hard to find. No market really wanted this mix end buyers said that the main reason was summer emalls and mediums are not suitable for processing. Some buyers were just not expecting heavy fishing so early in the season.

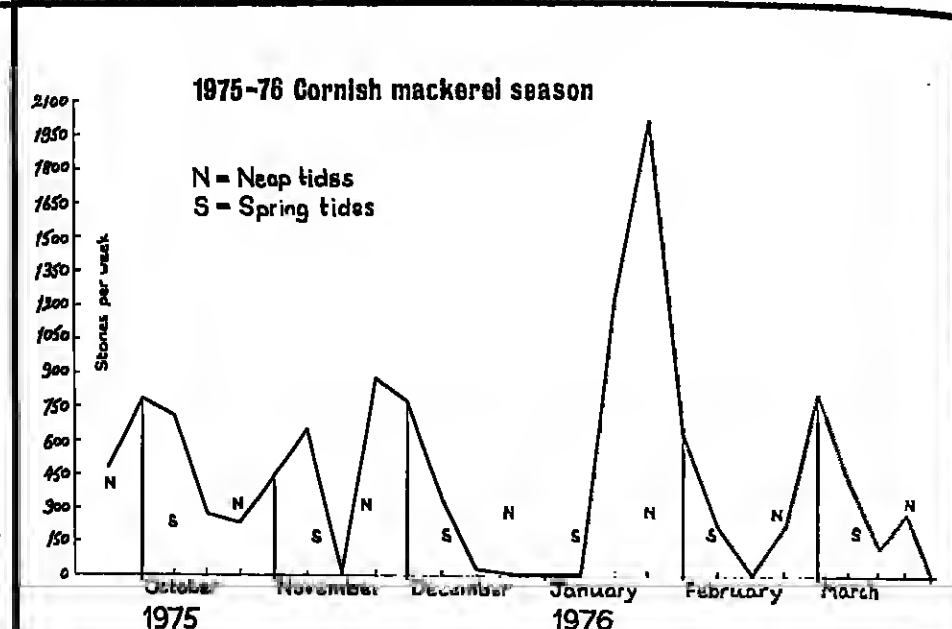
Vessels were heading for base as early as 9 am with 300-stone on deck, leaving behind heavy fishing. Then, fishing became very patchy; smalls and mediums predominated with the larger fish being hard on the bottom. South coast vessels, which had travelled west to boost a poor year's earnings, returned home as the marketing was very uncertain.

Large fish stayed deep in the water and it was then that skippers who invested in the Spencer Carter hydraulic gurdies showed better returns. Easterly winds kept the fish well down to the west of the grounds, the heat fishing being on spring tides.

The freezer trawlers Arctic Goliard and Orino arrived on the grounds and there were long and irate R/T conversations between line boat and deep-sea trawler skippers. Large numbers of foreign trawlers were also seen fishing on the deep grounds. December and the winter jumbos first showed for vessels steaming to the Lizard area. Newlyn-based boats found much steadier landings and many of the Falmouth fleet began to operate from Newlyn, the best area being the Wolf Rock. Easterly winds again caused many lost days.

Nearing Christmas massive shoals of smalls were found, but mid-water boats operating up to the three-mile limit were blamed for the reluctance of the fish to feed. The fish were close inshore in Covecreek and Falmouth bays and some shoals located were several miles square.

The Scottish pursers, led by Quo Vodia, arrived and heavy landings were put ashore at Plymouth. Bottom trawlers in the Lizard to Ed-



The graph shows the season's catch by a slightly above average 36 ft. line boat. Her skipper found the best fishing was on spring tides. Easterly gales killed fishing as well as kept boats in port. The heavy jumbo fishing in January came in on a spring end left at the drop off of tide on the following spring. The fish stayed over one neap tide, making one month's heavy fishing in all. The graph is compiled from total landings in stone per seven-day week.

distone area reported large quantities of dead fish on the seabed. This had never been known before and, naturally enough, the blame was directed at the mid-water trawlers and pursers.

## Jumbos

Early January saw the long-awaited arrival of the winter jumbos. Heavy fishing lasted about four weeks, with vessels landing around 1,000 stone a day. Market troubles began to materialise again and box quotas were imposed on most of the fleet, some being as low as 30 stone a man.

Until then, the main concern was overfishing by the now increased mid-water and pursuer fleet. But a new threat came to light: the possible loss of the line fish markets.

## BIM MAN GOES TO PRODUCER GROUP

**JAMES M. O'CONNOR**, fisheries development manager of BIM since 1963, will shortly be joining the Irish Fish Producers' Organisation Ltd. as chief executive and secretary.

Mr. O'Connor has been closely associated with the fishing industry in Ireland since 1940. He has gained considerable experience of many facets of the industry since then, including a knowledge of Government operations.

For eight years he was fishery officer attached to the Department of Agriculture and Fisheries when regulations began to be introduced under North East Atlantic Fisheries Commission auspices.

Since 1963 Mr. O'Connor's responsibilities within BIM covered resource development, education and training, fishing vessel quality and standards plus financing vessels under the BIM marine credit plan.

In his new position Mr. O'Connor will have executive responsibility for the Irish Fish Producers' Organisation which was set up in mid 1975 and started operating in February this year.

At present the owners of

Boxes became very hard to obtain as lorries were diverted to collect the heavy landings of the larger vessels. Fish boxes were only sent to line ports when the buyers particularly wanted line fish and many co-ops were stopped two to three days each week — a classic example of markets controlling fishing effort.

Mylnr. co-op, Falmouth, lost a 26-ton haul in France, condemned because of a flooded market.

Mid-water hunts began boxing fish at sea and, as the quality was only slightly down on line fish, the markets began to deal with the much cheaper net-caught fish.

Local feelings began to run high as there was a very real

threat to the whole mackerel line fleet. Protests were made against Scottish pursers landing large quantities for fresh markets but, as there was no government backing, nothing could be done to aid the small boat fleet.

There is no doubt that the pursers is the most efficient means of eventually obtaining a high British mackerel quota: the cost of that quota, however, will be the collapse of the Cornish-shore line fleet.

Cornish fishermen worked hard to establish continental markets and they feel that, to stand until watch these markets flooded by a few large vessels, is unfair to say the least.

## Feeding

February and fishing became very patchy again; large fish were very hard to locate and were feeding late in the day. The shoals were very deep on neap tides, and gales from the east again disrupted landings.

Thu line fleet has now broken up. The local vessels have been preparing for the netting and lining season. Some local trawlers have found a very depressed price for their catch.

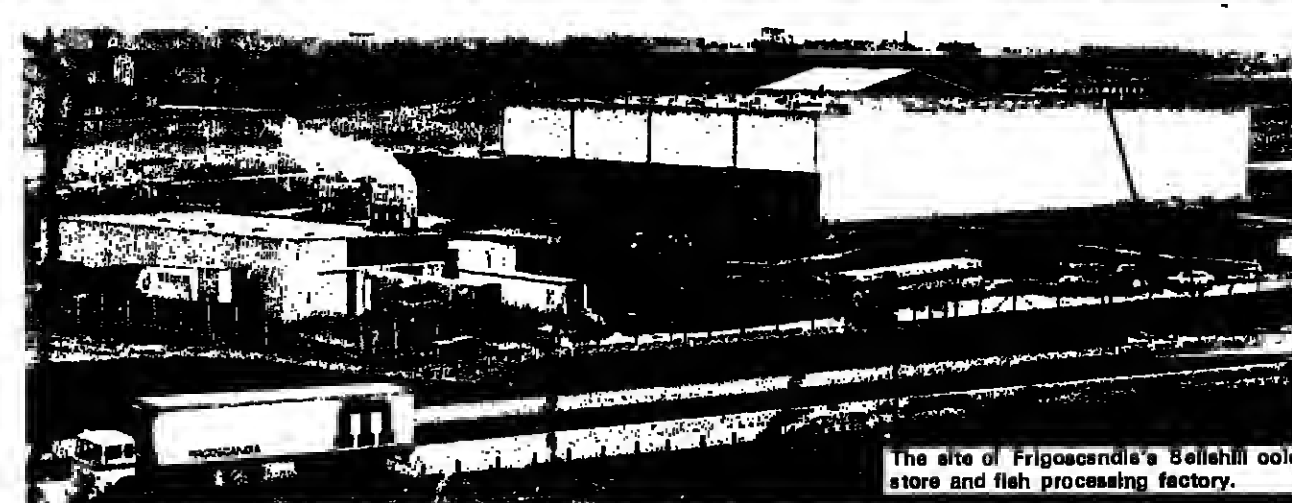
To sum up, the mackerel season has been dominated by market problems. Some owners dealt with as many as six buyers to continue fishing. Fish were hard to catch but when the heavy fishing came box quotas were imposed.

Mid-water trawlers and pursers directly affected the line market for the first time and prices did not keep pace with inflation. Next season will certainly be the make or break year for the Cornish mackerel fleet. Markets will be hard to find — and even harder to hold.

The row between Cornish line men and the Scott pursers must be resolved and there needs to be a compromise on the large numbers of foreign trawlers working on the outer mackerel grounds. This stock, fishermen are certain, must be protected before it is too late.

Already, one of Devon's top mackerel fishers, skipper has sold his boat and bottom has dropped out of the mackerel market. He expects to be fishing next season.

# fish handling PROCESSING AND MARKETING



The site of Frigoscandia's Bellshill cold store and fish processing factory.

# NEW COLD STORES NORTH AND SOUTH

## Scotland

A NEW 1.3 million cu. ft. cold store opens its doors for business in two weeks time. Based at Bellshill, on the outskirts of Glasgow, this is a first venture into Scotland by cold store operators and distributors, Frigoscandia Ltd.

Out of the total 9,000-ton capacity, space has been set aside in the cold store for handling 2,000 tons of frozen fish, and the link with fish extends to a new £300,000 fish processing factory built on the site.

This factory, which has been set up to process herring, mackerel and sprats, is the result of a unique tie-up with two well-known firms in the Scottish fishing industry: Richard Irvin and Sons, Aberdeen, and W. S. Unwin, Glasgow.

The Bellshill store is part of a £5m. expansion programme announced by Frigoscandia in 1974. This now brings the group's storage capacity in the United Kingdom to around 20 million cu. ft.

## London

Last year, at King's Lynn, Norfolk, Frigoscandia added 1.35 million cu. ft. to its cold store and an additional 750,000 cu. ft. to the store at Stratford, London.

A new blast freezer and an extra 1.35 million cu. ft. of storage capacity was added to the South Kirby complex, near Doncaster, last year. With a total of 6 million cu. ft. storage space, South Kirby is now one of the largest cold store centres in Frigoscandia's UK chain.

A fleet of 65 refrigerated trucks is now operated by Frigoscandia from the UK and initially 12 will be based at Bathgate.

Full report of the Bellshill cold store and fish factory is given on page 17.



Office block and blast freezing section of the proposed cold store at Hyley, Cornwall. Seen (left) is Eric Dunkley who heads the Bellshill development.

## Cornwall

**THE FOUNDATIONS** of the first public cold store in Cornwall have been laid and the plant could come into operation this year — if financial difficulties surrounding the project can be overcome.

With blast freezing facilities and flake ice production on site, the completion of the 165,000 cu. ft. cold store would give a big boost to the fast-expanding south west fishing industry.

The Copperhouse Cold Store is situated at Hyley,

adjacent to the main fishing ports of Falmouth and Newlyn, and work has proceeded to a point where the main office block and blast freezing room are now built.

Despite promises of finance at the start of the project which did not

materialise, the proprietor — Essex businessman Charles Craze — is optimistic that the £30,000 needed to finish the job will be raised.

Already we have had a lot of interest shown in the project by potential backers, Mr. Craze told Fishing News.

"Once we get the cash, we could be opening the cold store within four months," he added.

In addition to blast freezing and cold storage, the project also includes the production of flake ice. The first stage of ice production is underway and the local fishing industry is taking advantage of this. Full report page 16.

With a factory based at Sudbury, in Suffolk, the company decided to move into Scotland because of the big

potential there for fish farming.

Mr. I. Muir is in charge of sales in the north of England and Scotland. Mr. R. R. Watret, formerly technical development manager with Cooper Nutrition, has recently been appointed technical director of Edward Baker.

Fish meal bought at Fraserburgh, and from

## French spend-up

**BOULOGNE** — the largest fishing port in the EEC — is planning to become one of the major cold storage centres in Europe by 1980.

With French Government approval, Boulogne's Chamber of Commerce and Industry plans to spend around £34 m. on expanding the port and another £1m. on pack-up facilities, including a fish factory which will be ready early next year.

This factory, on the recently completed La Tresorerie industrial zone, will be purpose-built for the manufacture of pre-cooked convenience foods. Phase one of the construction, starting this May, will consist of a 2,000 sq. m. shell building designed for the installation

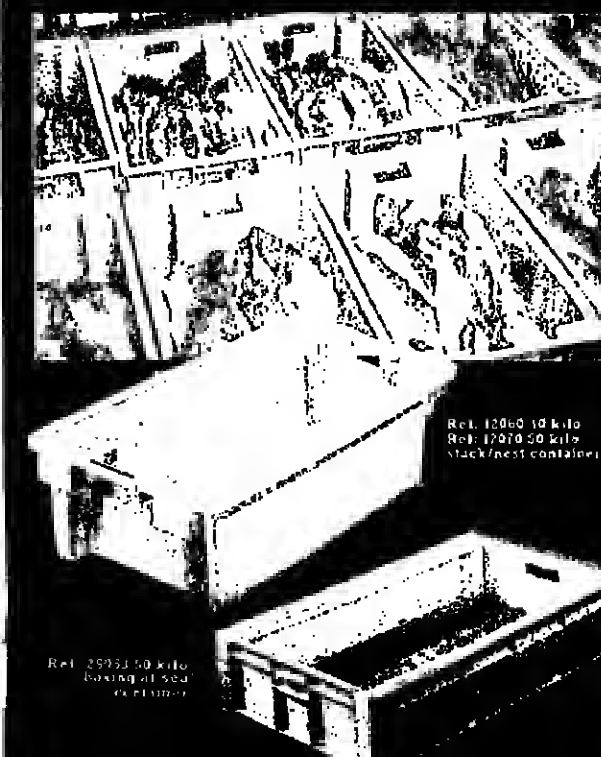
of deep freeze chambers of down to -30 deg. C.

Boulogne Chamber of Commerce and Industry is keen to attract British companies to Boulogne which, within four years, will be handling a third of the French export market in deep freeze products. It is suggested the port is ideally placed for a drive into Europe.

The overall project for 1980 will include around 300,000 cu. m. of low temperature storage capacity and a 50 per cent increase in the already substantial output of frozen sea produce.

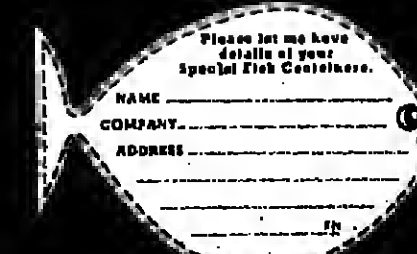
The project also envisages an annual output of up to 10,000 tons a year of pre-cooked meals, including gourmet preparations, mainly from small production units.

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## FOOD FOR FISH

A UNIQUE factory has opened in Scotland producing food for fish. Aimed at the fish farming industry, the £300,000 plant put up by Edwin Baker Ltd. is based at Bathgate, West Lothian.

Fish meal bought at Fraserburgh, and from

Norway and Denmark, is being used to produce a balanced diet for trout and salmon in pellet form. Both floating and sinking pellets are available.

With a factory based at Sudbury, in Suffolk, the company decided to move into Scotland because of the big

potential there for fish farming.

Mr. I. Muir is in charge of sales in the north of England and Scotland. Mr. R. R. Watret, formerly technical development manager with Cooper Nutrition, has recently been appointed technical director of Edward Baker.

Fish meal bought at Fraserburgh, and from



MORE THAN one ton in every four of all demersal white fish landed in Britain is now sent through the freezing plants. And nearly half of this fish ends up in the most popular and most widely promoted of all fish products in this country - the ubiquitous fish finger.

Last year Birds Eye Foods, the company which 20 years before had started the process by which the fish finger became part of the British way of life, celebrated the event appropriately where it started and where most of the production has been efficiently concentrated ever since.

The fish section of the Birds Eye frozen food complex in Grimsby is both pioneer and pace-setter in the way about 160 tons of carefully-selected quality cod is converted into 100 tons of fingers.

Having missed the celebration, I suggested to Birds Eye that I might be given the chance of seeing this process in what must be the largest makers of fish fingers (or stickles) in the world.

This was quickly arranged and I was soon being passed by Les Bonney (who heads the fish plant section of the Grimsby complex) onto his

# Inside the pace-setting

## 120 HAND FILLETTERS ON BIRDS EYE'S LINE

two section chiefs - Peter Smith in filleting and Eric Cribb in the section where the precisely formed frozen blocks are converted into cut, battered and crumbed fingers.

The process is easily explained. The incoming cod is

report by  
**PETER HJUL**

headed, filleted, skinned and the pin or vee bones cut out. The fillet is mixed with a solution of polyphosphate to maintain the original succulence of the fish. Blocks are formed in mould trays which are deep as a fish finger and are then frozen into what Birds Eye describes as "moulds of impeccable geometry".

This accuracy is essential

for smooth movement through the machines which take blocks of fish in at one end and disgorge brightly-coloured packets of fingers at the other.

First, the frozen mould is cut into "planks" each as wide as the length of a finger. Another batch of saws then cuts individual finger "blanks".

To give a one oz. nominal weight finger, the fish blank weighs an average of about 0.8 oz. Marinated in line, these blanks are fed through a thick curtain of batter made from flour and water with flavour enhancers such as salt and monosodium glutamate added.

A variable speed fan blows off surplus batter before the finger moves into the part of the machine which adds the crumbs. Another fan blows off extra crumbs.

The finger is now just about ready for packing, but before this is done the outer coating is heat-set by frying for about 45 seconds. The finger is then packaged and refrozen ready for distribution.

Expanded to the scale of the Grimsby plant's capacity and out-put - and with the

hygiene and quality checks and waste-saving measures added - this apparently simple process becomes more complicated at each step.

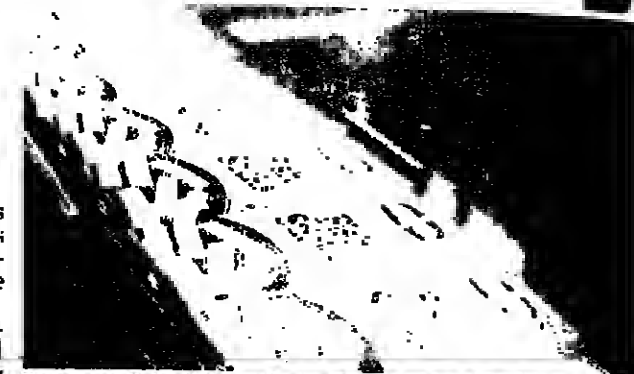
It starts for from the factory in the port market and other sources of fish. Working on medium-size cod, the cutting and block forming section in the Grimsby plant can handle about 100 tons of raw material a day.

### Thawing

Much of this is acquired by Birds Eye buyers from landings into the Grimsby market two miles away, but fish also comes in from other markets and in block form from the whole fish freezers.

The increasing frozen block intake is reflected in the new thawing plant building, where three machines are now operating and a fourth is being considered. The two latest of the three plants were built by Bankside Engineering in Hull and use warm water spray. Each of the machines can thaw about five tons in an eight hour cycle.

Wet fish arrives in its ice and, at the reception area, I was shown why the introduction of plastic fish boxes in Grimsby had not been welcomed at the factory.



Economy fish sticks sell at a lower price than fingers.

While fish arriving from Hull, Fleetwood or other more distant markets comes packed in ice in special ten-kil containers, the Grimsby supply stays in the market kits during transport to the reception depot.

The earlier metal kits could be efficiently packed 130 to a vehicle and stacked; the plastic boxes consume more space, only nine can go on a pallet and the vehicle load has had to be reduced to 90 units. The effect has been a substantial increase in labour and transport costs.

In partly balance this the boxes do ice the fish more efficiently, but the difficulty they have caused reveals how necessary it is to consider the effect on large-scale users when technical innovations are planned.

From the kits, containers and thaws, the incoming fish is washed and placed in batches of the 1,500 WCH plastic boxes used in the factory. Fish is either held a short while in the insulated building room, or moved direct into the cutting line.

For those used to the clutter of filleting machines this section would seem strangely silent, for this modern factory achieves a very high throughput while adhering to hand filleting. There are five lines of 30 stations each and the factory employs up to 120 skilled filleters.

"We believe that hand filleting still gives us the best selection and control over the product," said Peter Smith. "The hand filleters treat each fish as it comes and we find that this individual treatment results in a yield which is about three per cent better than we could obtain from machine lines."

Contributing to the high yield are a number of techniques evolved in the factory which are claimed to

## fish finger plant

raise extraction of useful meat from an average size cod up to about 55 per cent.

From the hand lines, fillets get their first of several washings, move along a conveyor belt and are graded. They then pass to a battery of ten Baader model 46, 47 and 48 skinning machines. The skins move with the rest of the offal into the flume and the automatic system leading to a collecting point for material for the fish meal plant.

### Extracted

Skinned fillets pass from the machines to where a team of four to each machine complete the trimming and removes the pin bones. These bones are conveyed to a Bader 894 deboning machine where usable meat is extracted for return to the main process line.

There the skinned and boned fillet is sliced, mixed with particles such as the meat from the debanner, polyphosphate is added, the mix is weighed, and it is spread evenly in tray moulds. The filled moulds are placed in large wheeled racks to be taken for blast freezing.

This section of the factory does not only prepare fish for the finger section. But, while there are other lines, this is the basic work carried out in the vast single hall by its work force of more than 400.

Production goes on day after day, from early in morning until 10 at night. Then everything stops. The shift

workers move out, the machines are shut and in comes an army of cleaners to wash down and thoroughly sanitise every table, machine, conveyor, floor area, rack and mould in the factory.

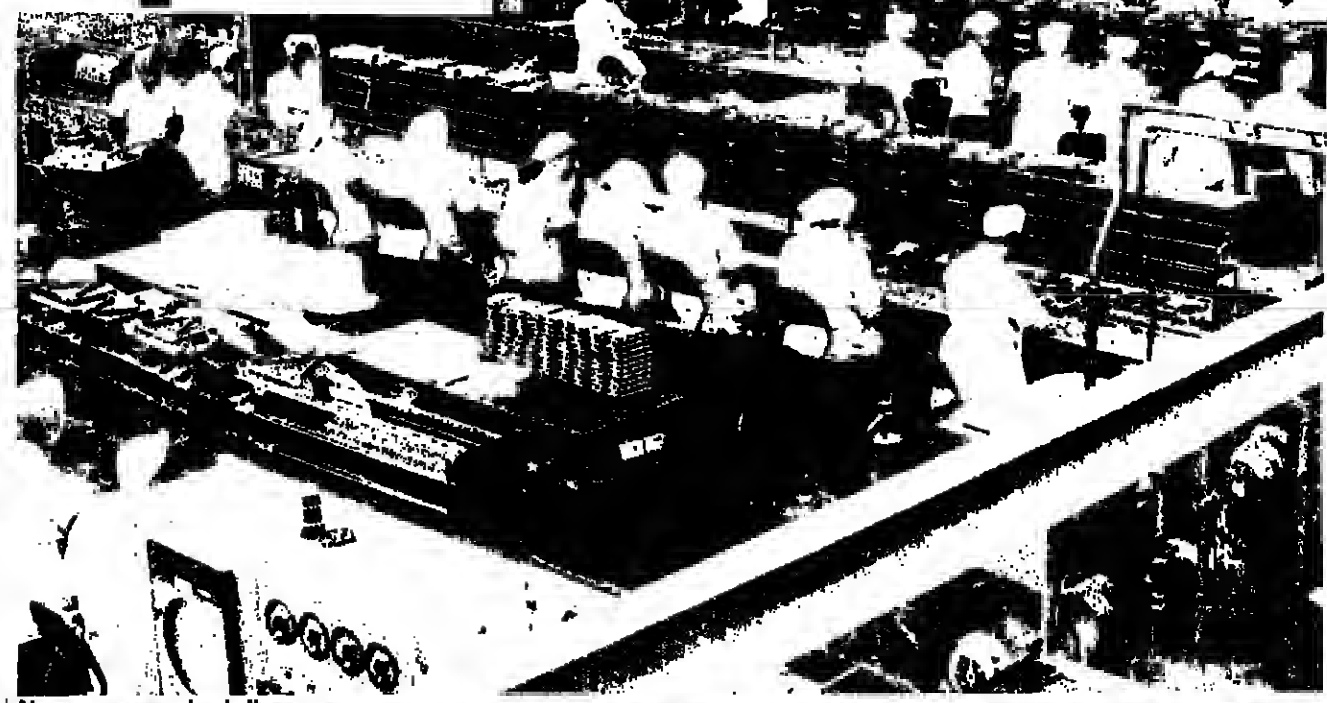
While the wet fish cutting and moulding section is organised for greater precision as a huge manual operation, the actual making of the fish finger is thoroughly mechanised.

The section under Eric Cribb receives its supplies of frozen and moulded blocks in about equal amounts from the Mr. Smith's section in Grimsby and from the Birds Eye factory in Hull.

For feeding into the six long machine lines, the preparatory cutting by hand-saws is first into halves, then into five pieces from each half and then into 20 fingers from each piece.

Moving through the machines, the fingers disappear into a cascade of white batter specially pre-mixed in another room to a Birds Eye recipe. The crumbs are blown evenly over before the batter can dry and all crumbs not contributing to an even, batter-clinging cover are blown gently off.

After frying, the fingers go into the most intricate part of the line where a pre-set number are grouped (six, 12 or whatever is required from the particular line) in a mould. A flattened box is shaped and the fingers are pushed into the box.

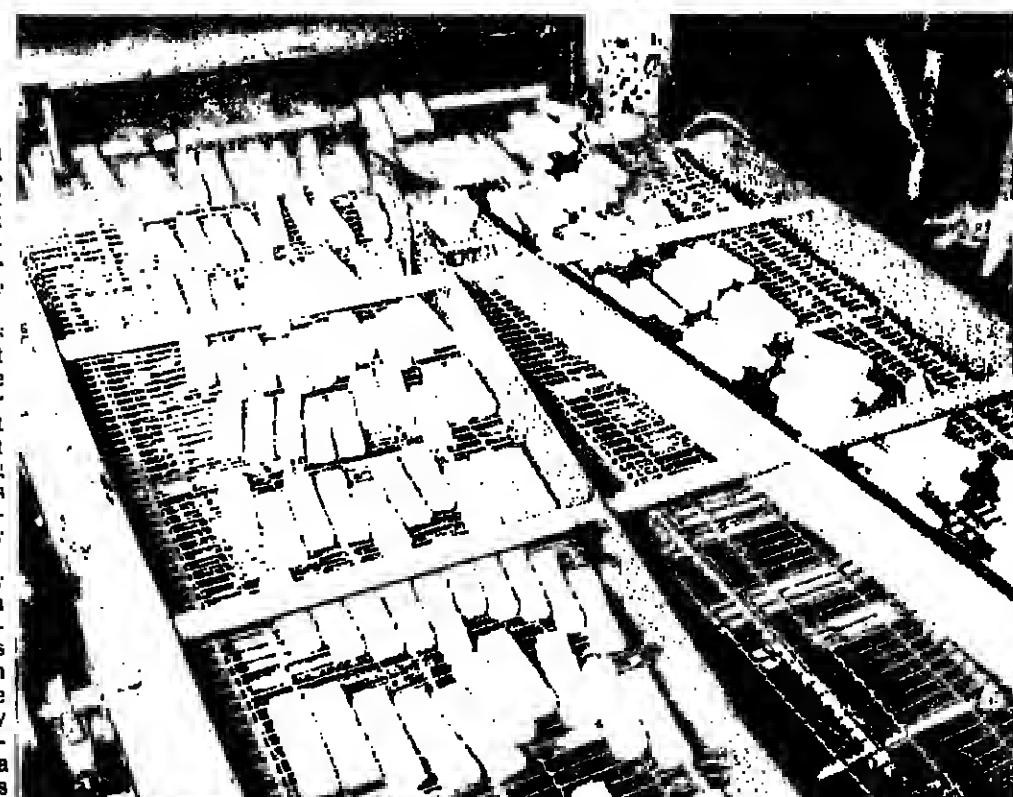


Above: women load fingers into trays after the frying stage. They are then sent for packing. Right: fingers run down the line to reach the first stage of packing.

Each box is embossed with a code to indicate when it was packed and where, and it then passes over a check weigher. This is set to the exact prescribed weight of the pack and rejects any that are under weight.

Although the fish finger is now a very uniform product in size, weight and shape, the machine lines in Grimsby can be adapted to turn out any of about a dozen different packs. If the pack carrying the label Fish Finger comes from Birds Eye, it will contain a product made only from cod.

In a factory so intensively organised to work on cod as a raw material, it is not surprising to learn that this species is also one of the main ingredients going into the lower priced 0.9 oz. Economy Fish Stick which can also include other species such as haddock or cod or, perhaps in the future, blue whiting.



## 'FINGERS' INTO 800 SCHOOLS

KILTIE, the wholesale frozen food division of MacFisheries, now has 10 sales and service centres with the opening late last year of a base in Bournemouth, London.

The centres are set-up from Preston in the north to Taunton in the south, and the new London centre has 16,000 cu.ft. of storage space in Bournemouth Cold Storage.

This branch has taken over contracts from the Leadenhall Market and Cusdson branches, which have now closed, and is supplying 800 London schools with fish fingers and some three tons of food a week to

London Transport's central kitchen. Several of the staff of 15 are ex-Leadenhall men, including operations manager John Ticehurst, while the sales team is headed by former Cusdson man, Roy Reynolds.

This sales team is not necessarily looking for business from the big customers. They are also seeking caterers prepared to pay for quality fish and reliability through regular deliveries using refrigerated vehicles.

Bournemouth is an important centre in the chain as it has the vast potential of London's large catering industry to deal with. There is room for

expansion, too, with additional cold store and general storerooms being available. Deliveries to central London are, however, hampered by parking problems.

The centre is being run "communally". Office accommodation includes a large open-plan office and a prefabricated cabin.

Kiltie will be pushing its products at two exhibitions next month - at Brighton and Blackpool.

Bournemouth operations manager, John Ticehurst, helps a driver load frozen fish on to one of the refrigerated delivery lorries.

A range of recently-introduced 2lb. polybag products for the home freezer and cash-and-carry markets will be featured. They have a transparent pouch which allows buyers to see exactly what they are getting.

Economy packs in polythene will be shown under the Kiltie label and branded bulk packs for caterers will also be seen.

Now Kiltie products at the exhibition will be built-in-bag 7 1/2 oz. window pouches of golden haddock cutlets and Kiltie's prawn cocktail supplied in packs of 30 three-oz. sachets.

The range of family-size fish packs in 2lb. polybags has been introduced to widen the market scope of Kiltie's own lines.

"Kiltie has recently increased its emphasis on the home freezer and catering markets, and we regard the introduction of these packs as a timely step to bring economy of outlay to the consumer," said J. M. Gardner, UK sales manager.

"We have done this both by reducing packaging costs and by using a smaller, more convenient pack weight."

The polybags have adopted for haddock, cod and cod fillets, and for golden braidermums of these products.

The polybag products not only replace the successful 2lb. cartons - both will be marketed alongside each other. The wholesale division since 1982, controlled processing and packaging.

production. These operations are concentrated at Fraserburgh, with additional production centres at Aberdeen, Banff, Grimsby and Hull.

The Fraserburgh factory specialises in processing kippers and boned kippers, but it is also at this factory - with its 350,000 cu.ft. cold store - that fish are smoked or frozen, and breaded and fried products are prepared.

Here, too, fish is packaged, not only for the Kiltie brand, but also for supermarket

chains under their own labels and for other household-name frozen food distributors.

Kiltie recently combined its import and export activities into a single department based at Grimsby. This handles all overseas buying of frozen fish, export sales to destinations such as Australia, North America, Poland and the Continent, and the activities of Bloomfield, a subsidiary company specialising in the curing and exporting of herring.



Scottish fish coming through the loading bay at Kiltie's Bournemouth cold store.

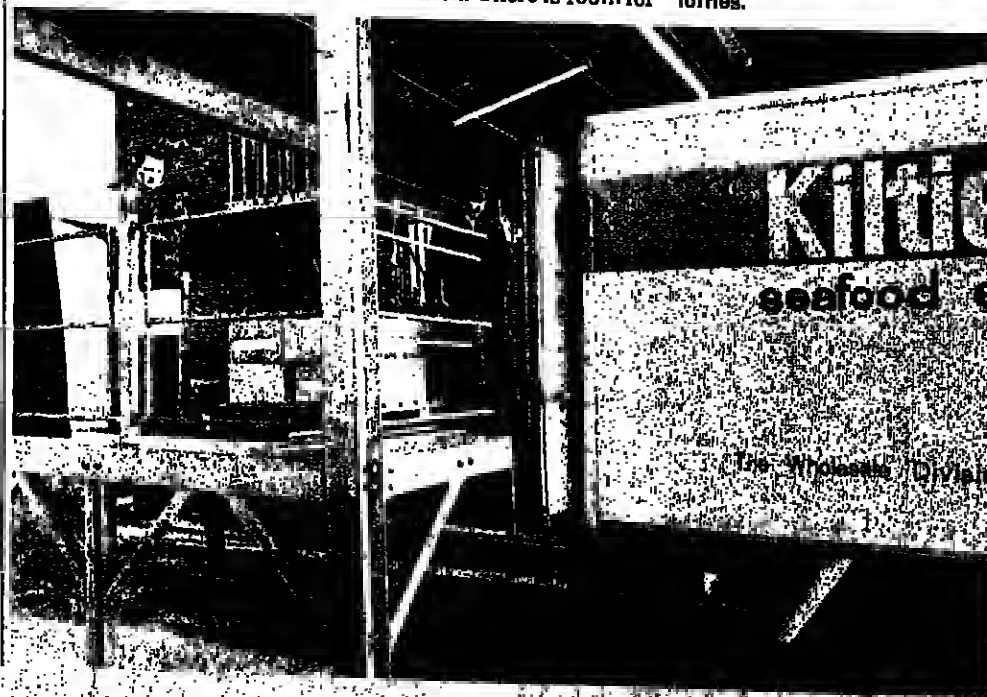
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## FISH HANDLING, processing and marketing

# QUICK START ON BIG IRISH FISH COMPLEX

WORK starts next month on building a Spanish-backed fish processing complex at the south-western Irish fishing port of Castletownbere.

The plant should start production at the end of this year and be producing products worth close of £3m. annually in three years' time. Around 6,000 tons of fish a

year would be processed.

The Spanish company Pascanova of Vigo is building the plant with the aid of a grant from the Industrial Development Authority (IDA), the government agency for promoting industrialisation in the Republic. The company will operate under the name Eirenova.

Building work includes cold storage space of 2,000 tons capacity.

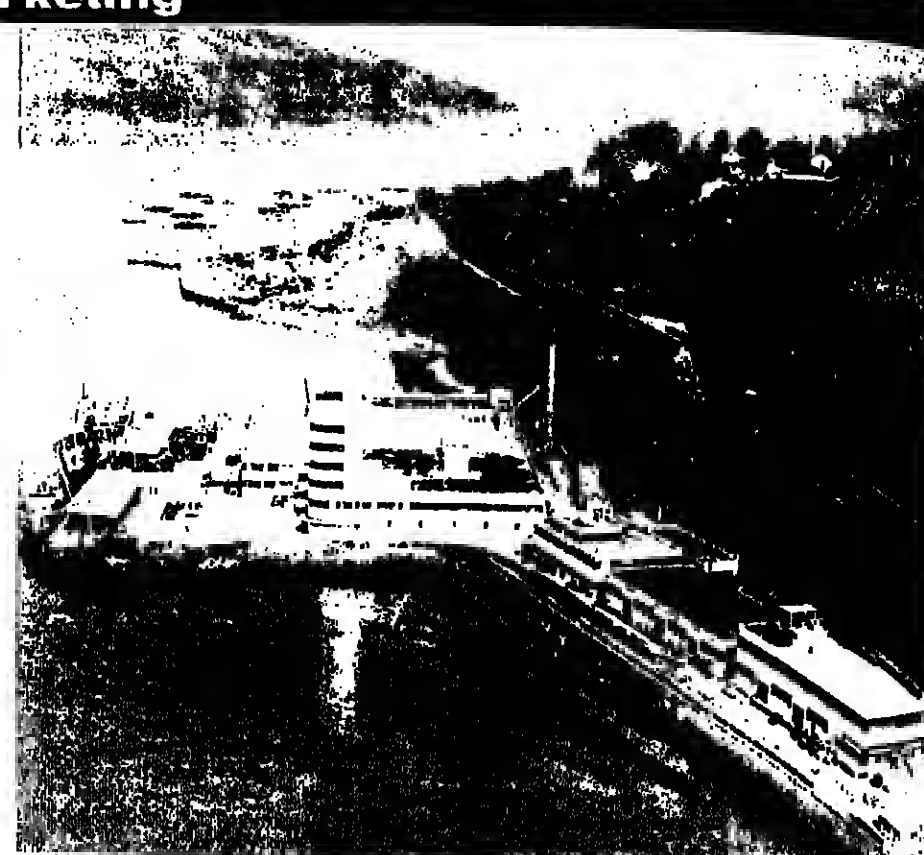
Initially, the complex will concentrate on frozen filleted fish for the catering and fish

finger markets. Later it plans to diversify into breaded fish portions and pre-fried cooked products.

About two-thirds of Eirenova's fish requirements will be supplied from its own four vessels which will fish off the Irish coast. The balance will be supplied by local fishermen.

Pascanova, founded in 1960, has expended rapidly and sales in 1974 were £28 million. It employs 4,600 people and maintains a world-wide fishing fleet of 130 ships.

Pascanova's base at Vigo, Spain. The firm now employs some 4,600 people.



## Belgian plans export base

A BELGIAN has announced plans for a fish processing plant at Fenit, County Kerry.

John Paulus has established South West Exporters Ltd. and leased a number of stores on Fenit Pier from the harbour commissioners. His aim is to turn them into cold stores, processing plant and to export from there to European markets.

Mr. Paulus said he would buy local fish, but felt that Irish fishermen have a lot to learn about preparing catches for the European market. He said that his company would give Irish fishermen instructions on cleaning aboard the trawler before the fish are landed.

Planning permission has been applied for and outline permission granted for the development to start.

Mr. Paulus did not state when this would be, but said he would be taking delivery of a 74ft. trawler to help supply catches for the plant.

He hopes eventually to set up a purpose-built fish processing plant at Kilfenora, but in the interim he intends to deal with fillets at Fenit pier.

# A MAN AND HIS VAN



FRESH FISH from a factory on four wheels. This is a service hotels in the Newquay area of Cornwall are now getting.

Behind this venture is a young former advertising salesman, Nick Howell (24) from Buckinghamshire, who moved to Cornwall last year and went into the fish business.

Nick Howell's fish distribution service starts on the market at Newlyn, where he buys mainly sole on the lugs, along with brill, pollack and lobsters. His polo blue Bedford 35cwt. van, which has been converted for the preparation of fish, is now a regular part of the fishing scene at Newlyn. Overland supplies are sometimes taken from Grimsby.

Inside the van, 330-stone of fish will eventually be handled each week. Most of the fish now goes to a string of hotels in the Newquay area. Stainless steel units are fitted in the van for weighing and filleting the fish; two waste tanks are provided. A winter heater and 5cwt. of crushed ice are also carried on board.

A bright, modern look is given to the interior of the van through a clear glass front roof.

The main attraction for hotels is fresh fish at reasonable prices. "The advantage for this type of operation is that, without middle men involved, I can keep prices down to a reasonable level," says Nick Howell.

While working for a national newspaper group, Nick Howell decided that he wanted a different type of life. He put the marketing knowledge he had gained to work on fish. After six months of research, he started business with the van in January this year.

Nick Howell is cautious about the success of his operation: "It's early days yet and I am aiming to expand my sales to London," he says.

He set up the business at around £2,000 — which included buying the van at £1,000 secondhand.

Nick Howell can be contacted at Stithens 618.



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## FISH HANDLING, processing and marketing

AN UPTURN in the American economy towards the end of last year means the outlook for fish consumption in the USA this year is 'fairly bright', according to the White Fish Authority.

This is good news for the British industry as the US market is a world barometer for fish prices and so has a direct bearing on the market situation affecting the UK.

Mr. J. R. A. Cumming, an assistant economist with the WFA's Fishery Economics Research Unit at Edinburgh, reports the situation in the paper *A review of the US*

market for fish, 1975.

He says last year proved to be a much more successful period for fish processors than had been expected. The US economy improved and fish prices went up at a slower rate than competitive

products of other foods.

The catering sector also improved in line with the economy and this led to an increased demand for battered cod portions, which are a relatively new product to the US market. Previously a

breaded product had been supplied.

The US retail price index for fish increased by only 9.4 per cent last year, while most and poultry prices moved up by between 10.2 and almost 30 per cent.

The market upturn came after the most prolonged and severe recession of the post-war period, according to the report.

Total US fillet consumption was 382.5 million pounds last year, an increase of 21 per cent on the 1974 level.

The last six months of the year showed how much the market had picked up, as

there was a 30 per cent increase in fillet consumption compared with the second half of 1974.

Consumption of fish blocks in the USA increased compared with 1974, but to a lesser extent. Cod in blocks

proved more popular, however, increasing its market share from 41.5 to 48.5 per cent. The pollock market — at 25.4 per cent — was down 4.4 per cent on 1974.

Increased fish consumption is reflected in the import figures. The average monthly imports of fillets increased by 26 per cent to 25.8 million pounds, while block imports were up 18 per cent to 26.2 million pounds.

Fish fillet stocks in US cold stores took a tumble as consumption rose. At the end of 1975 they were 16 per cent down on the 1974 figure; block stocks were 25 per cent down.

## Keep tabs on trends

A EUROPEAN version of an American newsletter which gives confidential information and opinion on fisheries matters has been published.

The European edition of the Gruber/Erkiss Seafood Letter made its debut in February and is being edited by Eric Elston, who recently retired from Birds Eye after more than 25 years. Latterly he was the firm's supplies director.

His wide experience is evident in the introductory issue sent out to existing subscribers in the US letter. It outlines the market situation in the main fishing countries in Western Europe, and then considers the current and short-term outlook.

Analysis is presently complicated by a general situation described by Mr. Elston as "most unsettled, seriously distressed" and of anxiety in the fishery industries over their future.

For a while at least, the uncertainty will make accurate forecasting extremely difficult. Thus, the observation that Iceland might be in a strong position to supply her markets, which was a fair assumption at the end of 1975, was changed drastically by the fishermen's strike over oil prices was followed two days later by a general strike over wages.

The European edition, to be published every second month, will cost about £120 (£240) a year, the monthly US edition about £100 (\$200).

## Factory trawlers go south

TWO West German factory ships headed south to a new base at Walvis Bay, South Africa, in January and are now ranging the southern Atlantic for hake.

Four more vessels are expected to follow them if the pilot project shows promise, according to the German fisheries journal *AFZ*.

The ships are owned by Norilsec and are of the University class. The first two — *Freiburg* and *Tubingen* — were built in 1968 and have recently refitted for operating in tropical waters.

Their four sister-ships — *Erlangen*, *Heidelberg*, *Bonn* and *Marburg* — are at present being similarly refitted at Bremerhaven at an estimated cost of £1.2m. a ship.

This move follows West Germany's recent agreement with Iceland which stipulated the exclusion of German factory ships from Iceland's commercially-declared 200-mile limit.

Nordsee's technical director, Wilhelm Janssen, announced last September that the six University-class ships were to be refitted and mentioned that the refit would also enable them to be modified with relative ease for fishing in either cold or tropical latitudes.

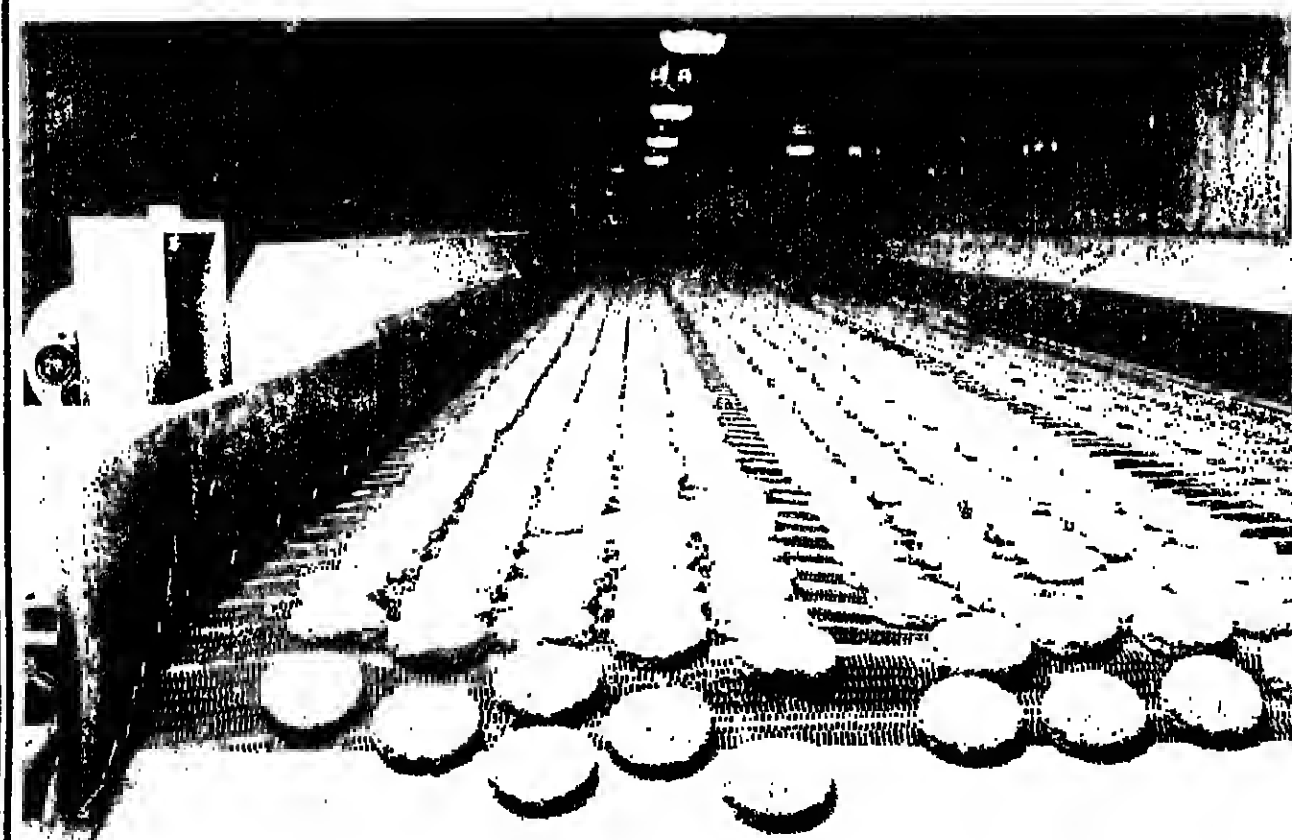
The modernisation of each vessel includes a specially-built automatic net drum, together with the latest in processing equipment.

Gutting, for instance, is fully mechanised and the fish, after gutting, are pre-cooled before filleting and freezing. Fitted on the factory decks of the two ships now working on hake are Bader's 180 filleting machines. Specially designed to reduce labour on ship factory decks, the 180 machines operate a pin-bone cutter. The unit is claimed to fillet cod, or related species, over a wide size range at a rate of 60 a minute.

It is claimed that the processing equipment installed will produce completely lumpless fillets, and that the fillets will be capable of turning out any format or product required.

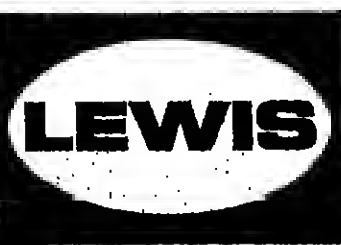
The operational plan is for a one-year fishing tour for each ship in the South Atlantic. Catches will be transferred to refrigerated transport vessels in Walvis Bay, where crews will be changed and, eventually, repair facilities provided.

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# THREE-PRONGED ATTACK ON BLUE WHITING

TWO PROTOTYPE fish processing machines are due to be installed in a Stornoway fish factory this week for handling blue whiting. This is part of a joint effort by the White Fish Authority, Torry Research Station and the Highlands and Islands Development Board to get what has been predicted as a massive fishery for the British fleet off the ground.

Although it is reckoned season off Rockall is a short that one million tons a year of one, mainly between blue whiting could be taken, February and April. After because of its small size it is difficult to handle mechanically and produce a good fillet.

Now, big hopes rest on the work which will take place in the Rolf Olsen factory on the Isle of Lewis, where a modified Arenco CIP/CIS machine, and a new Baader 121, are being moved in for experimental work.

The Arenco machine will be used to process skin-on block fillets and the Baader machine for skinless fillets. A Torry machine will be used for grading the blue whiting.

During the trials, around 50-tons of blue whiting will be handled by the filleting machines. The block-fillets will be plete frozen and despatched in shatter packs, while the skin and bone-free fillets will be frozen in blocks.

In the event of problems being encountered with the machinery, hand filleters at the factory could be called in.

The catching side of the joint operation is being run by the HIDE (see right), while Torry will assume responsibility for quality control both at sea and ashore. All the processing work is being supervised by the WFA.

The fish will be landed at Olsen's factory both boxed and in chilled seawater containers. Alcoa containers and a tilt unit will be used.

A mobile crane on the quayside will handle the containers on and off the vessels and they will be taken into the factory by fork-lift truck.

The opportunity will also be taken to test small haddock and whiting on the filleting machines.

One of the main problems to be faced in dealing with blue whiting is time. The

this the fish move off to an area between Iceland, Faroe and Norway.

Time is also against blue whiting once it is caught. If kept for more than three days in ice or before freezing, the flavour deteriorates rapidly.

On the catching side there

are some problems too, with having to work gear at a depth of 200 fathoms. With blue whiting representing a big hope as an alternative species for fish sticks, the progress made with this filleting machinery will be closely watched by the big frozen food companies. If this bone problem can be overcome, blue whiting makes a good

laminated block for cutting up.

Earlier tests revealed prospects for blue whiting as a smoked product. The soft texture of the flesh, however, was against it for canning. The blue whiting tended to break up easily in the can and there was also a flavour problem.

FOCAL point of the project up for blue whiting is the fish Rolf Olsen Ltd, at Stornoway. Fishes are being installed to handle the blue whiting will be landed at the Sharnah and Hebridean, a fishing vessel operated by the Highlands Development Board. Following trials, these two trawlers will fish as part of a 12-month trial.

## YEAR-LONG STOCK PROE

BLUE WHITING for the processing trials at Stornoway will be brought ashore by two trawlers which start a year of trial fishing on the stocks next month.

Along with other species such as sand eel, pout, sprat, and meckers, it is hoped to establish an industry fishery which will last throughout the year.

Successful fishing trials for blue whiting were carried out last year by the Highlands and Islands Development Board and Prophet Smith, fisheries board member, said this week that they wanted to

get on to the next stage without delay.

"Over the next twelve months, the Board expected to confirm their hopes for the development of a new year-round fishery that could have important consequences not only for the Western Isles, but for the nation," said Mr Smith.

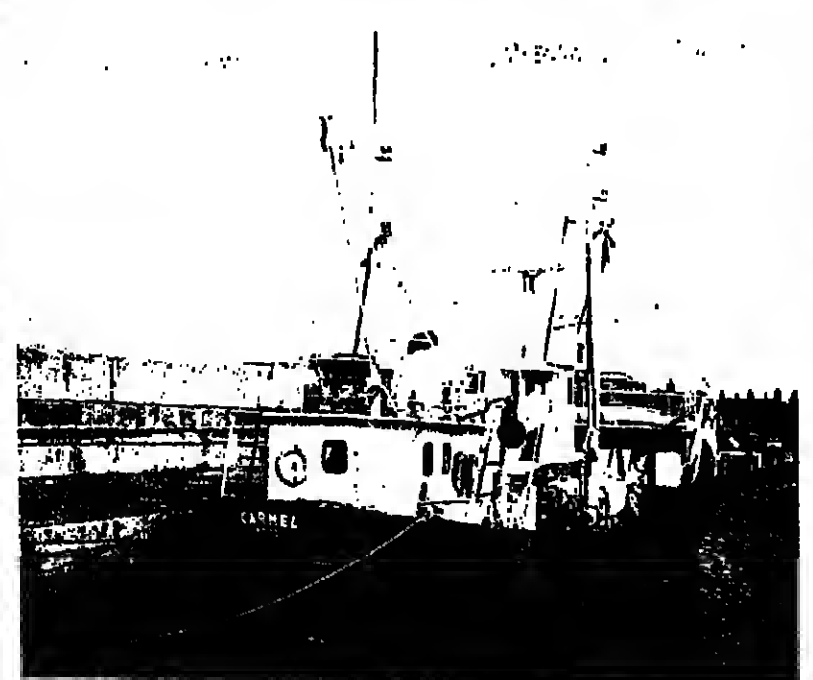
"The waters around the Scottish Highlands and Islands have always been important in the nation's fishing industry, and that is no less so today.

"With increasing moves by individual nations to protect fisheries around their shores, and the concern over the stocks of certain species, we must pay greater attention to untapped resources.

"We see considerable potential in the north-east Atlantic for industrial fishing which will both reduce the nation's need for imported fish meal and take the pressures off edible species currently fished for meal and oil.

This board has now chartered the Peterhead trawler *Sharnah*, owned and skippered by James Pirie, which had already conducted experimental voyages on blue whiting. She will work in conjunction with a Swedish trawler *Cornel*, which has been acquired and renamed *Hebridean*.

An eight-strong crew is now being assembled and *Hebridean* is being commanded by Alex Smith, an ex-White Fish Authority skipper.



The ex-Swedish trawler *Cornel*, now re-named *Hebridean* (SY2171), has been bought by the Highlands Board to fish blue whiting. *Sharnah* (below) is already on charter to the Board.



# ...an answer to rising cod prices?

OVER the past 20 years the frozen food industry has supported the fishing industry by marketing good quality fish as conveniently handled fillets and in the form of processed products.

Without the technological and marketing support of the major frozen food companies the industry would reflect a very much less significant image than it does today.

As a result, there has developed a close interdependence and, in these days of trouble and uncertainty in the trawling industry, that relationship must be preserved.

The catching industry is currently faced with enormous problems and its future is uncertain. The natural stocks of cod and other traditional species are rightly being protected under international agreements and trawlermen are not only concerned about where to fish, but also about what marketable species they may be allowed to maintain a viable future.

## Attractive

The immense stocks of blue whiting, with an estimated maximum sustainable yield of at least one million tons a year in the west-east Atlantic, mostly west of the British Isles in the spring spawning period, present an attractive proposition to trawlermen. But many

THE author, Eric Elston, is a consultant with 30 years experience in the frozen food industry, both in the UK and on the Continent. A former technical director and supplies director of Birds Eye Foods Ltd, for over 12 years, he is a member of the MAFF Fisheries Research and Development Board and WFA Research and Development Committee.



frozen food processors, including the major company, are not so attracted; indeed, some are seen to be decidedly cool.

The marketing man knows his consumer well, he has consistently told her that cod is best; he has spent hundreds of thousands of pounds supporting this view and is now hoist with his own petard.

Be that as it may, the major companies are heard to say that they WILL have their end — if not from their own vessels then from imports — and they will pay the price.

There comes a point, however, when the housewife says not! We have to prepare for that eventually.

The very significant growth potential of the frozen food industry cannot surely be satisfied with a continuance of today's high level of dependence upon cod. Alternative species must come into their own, bely, bake and ling we know can take a place but, they may not be able to withstand too much pressure.

The deeper species such as grenadier and scabbard are expensive to harvest, vir-

tually impossible to handle and will not evoke the slightest degree of interest by the frozen food processor. They should be forgotten.

We must, however, not forget that better use could be made of small haddock and codling — and, looking further ahead, we should seek a way of using this blue whiting resources to the benefit of both the trawling and frozen food industries.

## Blocks

The frozen food producer needs assured regular supplies in convenient form. In the case of blue whiting this excludes whole fish as their relatively short "life" and small size (25-32 cm.) would place an intolerable burden on factory resources.

In order to get the best texture and minimise handling, the objective should be a skinless — boneless block with the potential of direct conversion into breaded portions, fingers, etc., or of incorporation, if desired, with other species maintaining good texture and organoleptic qualities.

Second best, the more cheaply produced blocks of comminuted flesh may be used in part substitution of cod and other species in traditional products, particularly alternative fish fingers and fishcakes. The institutional trade may be interested in block fillets, shatter pack.

So the objectives are clear,

but we should not underestimate the problems that beset us:

1. The locating and economical catching of the species in good condition over a longer period than the two — three months so far established. This is being pursued jointly by the Highlands and Islands Development Board, White Fish Authority and Torry Research Station.

2. Quality preservation on board — the reduction of damage in the nets associated with the sheer density of the shoals, despite short hauls, also proper handling to reduce discolouration of the flesh.

3. The cost and diverse cash flow effect of long term storage between seasons. It has at least been determined by Torry that raw material may be stored for nine months at -30 deg. F under commercial conditions and maintain its quality characteristics as well as other guidelines.

4. The ability to size grade preparatory to further machine processing.

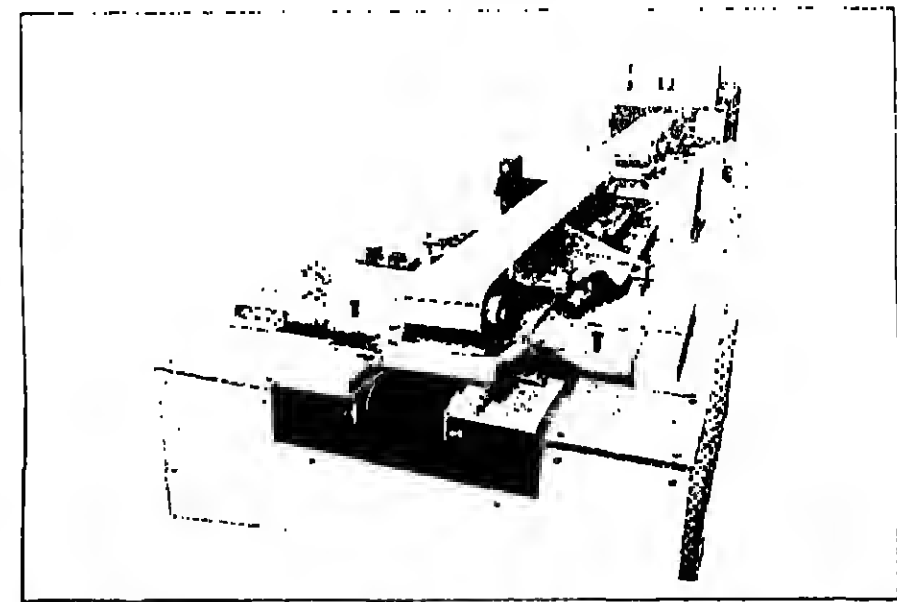
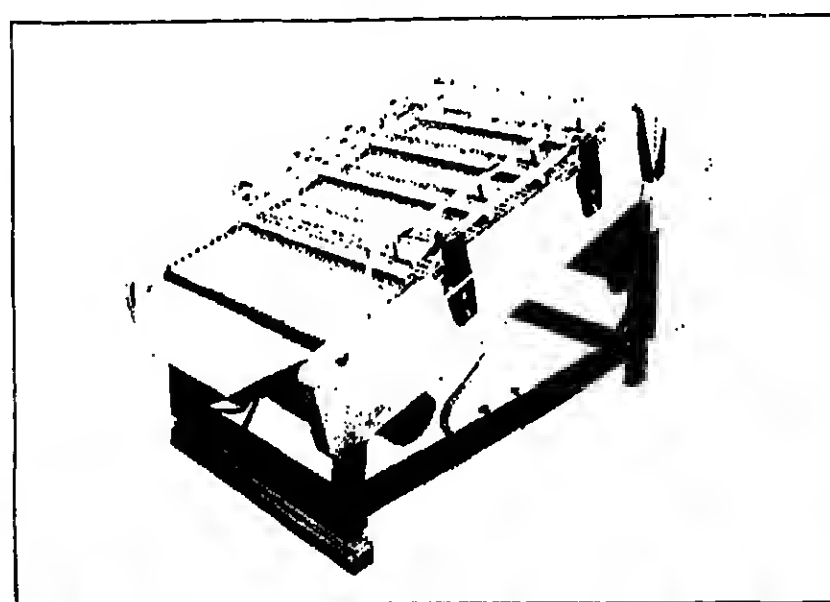
5. The development of efficient machinery to hand, gut, wash, fillet, debone and skin. This is the ultimate and would enable the industry to freeze on board, with all its attendant quality advantages. Alternatively suitable machinery for assisting shore-based operations is imperative. Arenco was not very

successful last season but has now modified its CIS/CIF system and is confident that this will head, gut, brush out belly cavity and black membrane to give a good, comminuted product through a bone separator. Work in Norway supports this possibility. Furthermore, modification now being made to the blade assembly of the Arenco SFA4 may offer skinned fillets. Meanwhile, Harter has been developing a new design of machine for skinless fillets with considerable length tolerance, and it is known that this will shortly be unveiled and put on trial at Stornoway alongside the other systems.

6. Incorporation in suitable frozen products and the appropriate consumer acceptance and storage trials. This is work that can be most effectively carried out by the frozen food companies in the course.

7. Confirmation that the total exercise will show economic returns for those involved. This will necessarily depend on the movement of cod prices and the costs of handling and processing blue whiting. Signs are that the relationship is sufficiently encouraging to justify continuing development effort and it is gratifying to note the commitment of the Ministry, the White Fish Authority and Torry.

The overall programme may well take three years or more.



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## FISH HANDLING, processing and marketing

## company profile

COCKLES seem an unlikely basis for a multi-million pound business, yet this shellfish started Severnside Foods Ltd. on the way to success.

The company has now grown to be probably unique in the fish industry, as it controls its whole operation from growing the raw materials to delivering the product direct to the sales points.

Brothers Trevor and Tom Jones of Bristol started the business in 1946 with a capital of £80 by selling fresh cockles from door to door.

With food rationing in force, there was a big demand for cockles which were exempt and business boomed. The cockles were obtained from Penclawdd, South Wales.

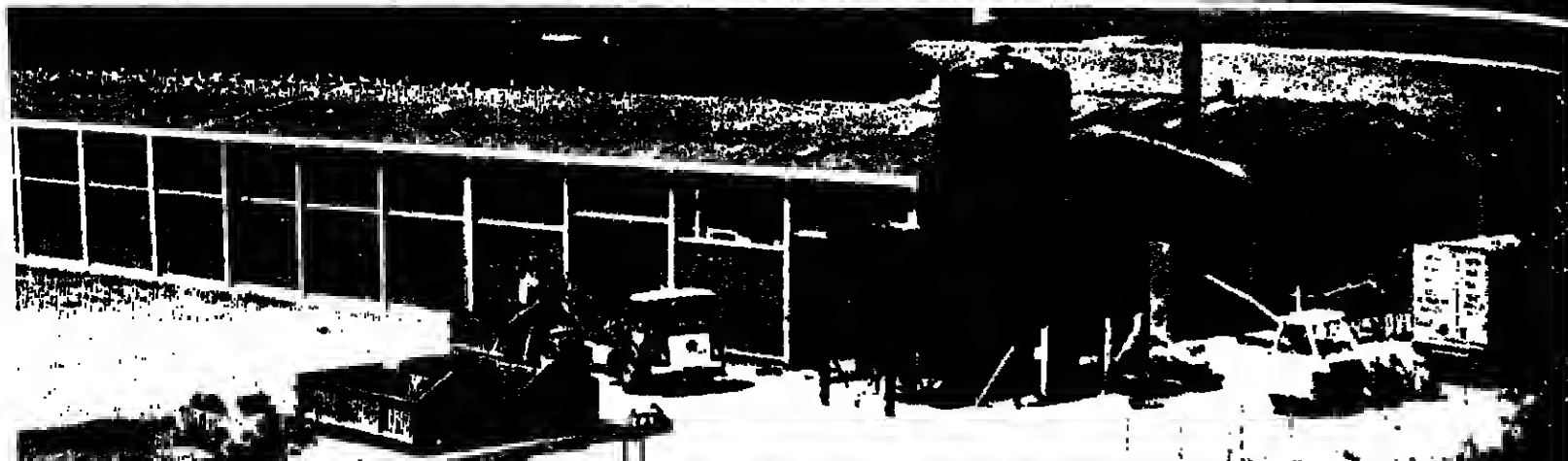
The brothers tried selling other fish but the cockles were so successful that the business concentrated on them.

## Pubs

The Severnside brand name was launched in 1949, product and mussels were with cockles in vinegar being sold to local public houses. and, today, cockles and Expansion continued and a packing factory was opened at Patchway, Bristol, in 1952. Cockles in jars were introduced and were immediately successful, so depots were opened in various parts of the country.

Progress was not without problems. As always with the shellfish industry, erratic and seasonal supplies caused considerable production difficulties — and a large packing factory cannot be kept idle waiting for supplies.

Flooding on the east coast reduced supplies of cockles from the Wash, and the catch at Penclawdd dwindled. Alternative sources of supply were found in Denmark and Holland and, for a while, most of the cockles sold by Severnside came from Holland.



The Welsh Seafoods factory at Caernarvon where mussels are the main product handled.

## SEVERN-SIDE — COMPLETE PRODUCT CONTROL

The factory at Patchway turned to producing fish cakes and fish fingers, but the brothers saw the future in shellfish and decided to concentrate on them. Reliable supplies of the raw material were essential and it was realised that this could only be ensured by having full control over the product from catching to selling.

A large shellfish business could not survive on only one product and mussels were tried. This was successful and, today, cockles and mussels form the major part of the business. The company produces most of its own supplies of these shellfish.

## Freezing

Cockles are harvested on the Essex coast and processed at a factory at Battlebridge. A subsidiary company, Crouch River Farms Ltd., handles this operation and raw cockles are sent to Patchway for packing or freezing. The cockles are still marketed in glass jars and are a familiar sight in public houses throughout the country.

A growing market for cockles in vinegar is developing in supermarkets. These stores also take Severnside IQF cockles which are marketed both in consumer

packs and bulk. Frozen cockles now form a large part of the turnover.

Mussels are handled in much the same way. A processing factory is situated at Caernarvon, on the Menai Straits, and recent development makes this one of the

most modern plants of its type in the country.

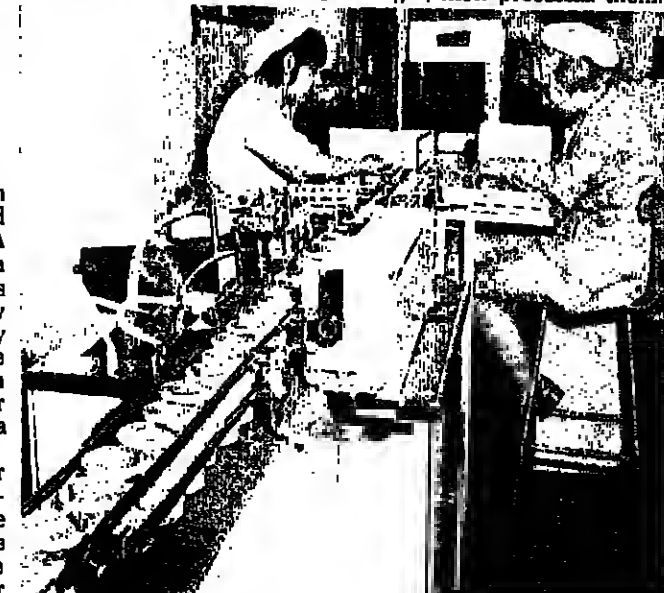
The business here is run by Welsh Seafoods Ltd. which gathers the seed mussels from the western end of the Menai Straits and lays them on specially-prepared beds off Bangor, then processes them.

The mussels grow for two or three years before being harvested.

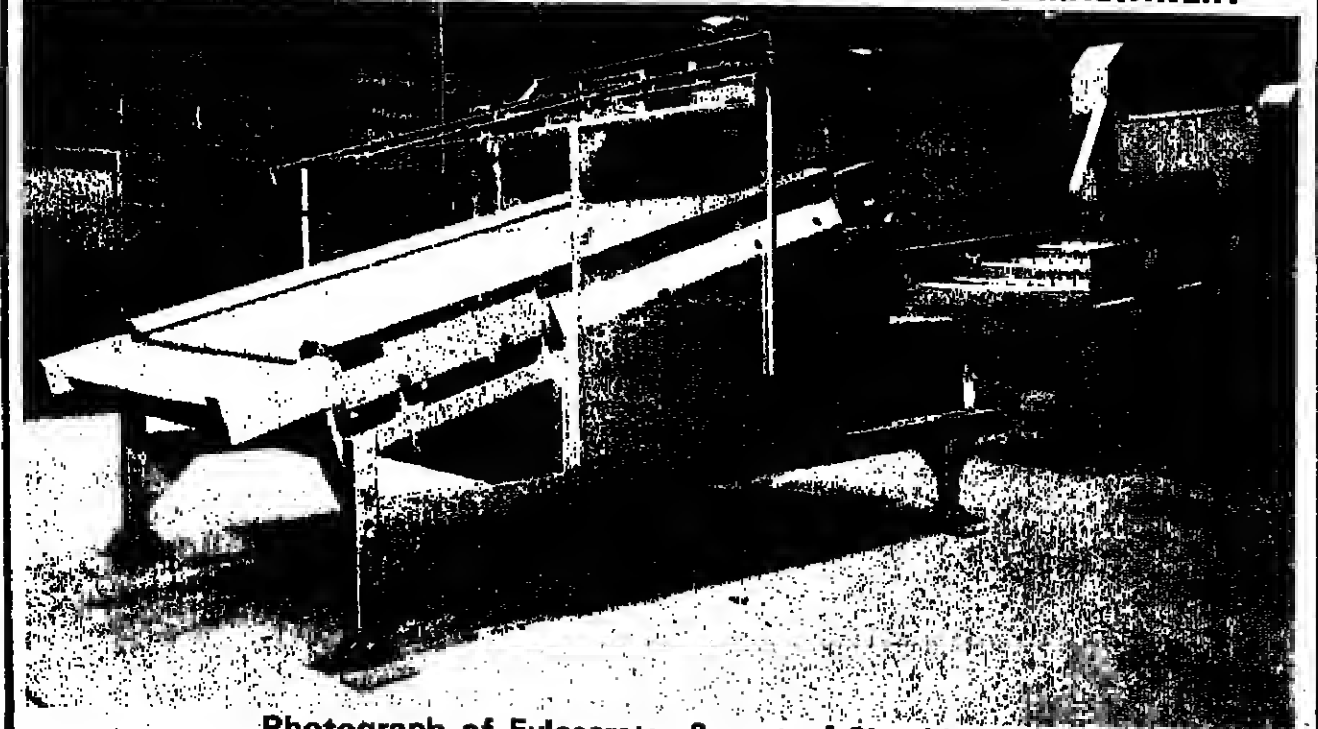
Welsh Seafoods Ltd. run two mussel dredgers — Zerkzee and Zergontium — to lay and dredge the mussels. The boats deliver mussels direct to the factory where

they are processed in a highly mechanised system. As with cockles, the processed mussels are sent to Patchway for packing and distribution.

By controlling the product from start to finish, Severnside is able to ensure high quality and quantity. The



Left: a Severnside mussel bottling line. Above: a nitrogen tank in operation with individually quick frozen mussels coming off the line. Below: the cockle bottling line is largely automated. Bottom: quality control and testing area, where a constant watch is kept on product quality.

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## FISH HANDLING, processing and marketing

## Scots backing Cornish fish

## — joint marketing venture is set-up

customer gets the right grade of product and, as far as possible, the factories work to capacity.

Marketing is a major part of the Severnside operation. In this country a branch at Thornbury, Gloucestershire, handles the distribution of frozen products of both Severnside and other firms in the area for about 50 miles around Bristol. Similarly, products in jars are handled from the Patchway factory.

Nationwide the sales are handled by Janks Bros., of High Wycombe, one of the largest food factors in the country. Abroad, Severnside has subsidiary selling companies in Holland and Spain where the majority of exports go.

Agents handle sales in other countries, including Australia, Portugal, New Zealand, Sweden, South Africa, Cyprus, Canada and the USA, which is seen as a growth market.

Spain takes large quantities of frozen cockles. On arrival in Spain cockles are defrosted, salted and canned.

## Award

Severnside was awarded The Queen's Award to Industry for its export performance in 1967.

Other lines are being introduced into the Severnside range of products. On the fish side these include jars of whole and jellied oysters, plus a variety of value added frozen fish products.

Value added products are those with a sauce or similar additive, so that the whole dish is contained in a frozen pack.

Outside the fish field, pickled eggs and lemon slices in plastic pots are a speciality. The factory at Patchway contains one of the two egg-shelling machines in this country.

The company is also diversifying into the cold storage business. Severnside Cold Storage Ltd. owns 1½ million cu. ft. of modern cold storage space in the Bristol area and there are plans to expand this with stores in other parts of the country.

## Public

Whilst these stores are used for Severnside products, they are primarily public cold stores.

Severnside will not give figures of its annual sales of cockles and mussels, although they are without doubt the market leaders. The firm would, it says, be prepared to give the figures if other firms in the industry did the same.

Severnside feels there is a need for a trade organisation to be in a position to collate and publish such figures, both in the interests of the industry and conservation.

The development of the cockle and mussel beds at Caernarvon and Essex has been done with a great deal of help from the White Fish Authority and the Ministry of Agriculture, Fisheries and Food.

The WFA was particularly helpful in the development of mechanical methods of dredging and grading cockles. It is only by putting the industry on this sort of footing that the supply of the raw material can be guaranteed.

Severnside Foods Ltd. has new products planned and we can expect to see further diversification, but still retaining the basic connection with the fish industry.

The cockle is likely to remain its mainstay for a long time yet.

**TRAWLER owners Richard Irvin and Sons have moved into fish processing and marketing at Aberdeen, Glasgow and Cornwall to diversify its interests.**

In January the firm took over the premises of fish merchant Wm. Taylor Jnr. at Sinclair Road, Aberdeen, and founded Alert Seafoods (Aberdeen) Ltd. with a capital of £150,000.

Irvin holds the largest share in the business, but also having a stake in the venture is Albert Hyland, the new firm's managing director.

Supplying wet and smoked fish mainly to UK markets, the firm now employs about 20 people and buys white fish landed at Aberdeen and Peterhead.

Irvin has also entered into a joint venture with Kismet Fisheries (Cornwall) Ltd. of Penzance.

Irvin's director, John Craddock, told *Fishing News* the firm has taken this step south to look after the interests of Scottish boats which may fish off the English south west coast. The firm also hopes to establish a connection with the local

vessels, as there are good prospects for the development of fishing off south west England.

Whereas Kismet will look after the marketing side of the firm, Irvin will provide the fish selling know-how.

Mr. Craddock was eager to point out that the new com-

pany will work in harmony with English fishermen and not against them. He added that already it had helped a Nowyn fisherman buy a boat and would very much like to expand this side of the business. It would also manage local boats in addition to selling catches landed

by Scottish boats fishing in the area.

Mr. Craddock feels that the West Country fishing could be a good thing for the Scots and that local fishermen could also move into larger boats and develop trawling in a bigger way.

An extension of UK fishing limits would certainly help the industry to develop in the south west, but at the present time the marketing is somewhat limited.

Kismet Fisheries is now managing the 99ft. French-

built purse seiners *Gollic May* and *Gollic Rose*, which are owned by Gallic Shipping Ltd. of London.

These vessels, which have Ayrshire skippers and crews, have sold their catches to France and Holland, but more recently have been unloading mackerel to W. S. Unklea of Glasgow.

Irvin's move into the West Country was prompted last autumn when three Potarhead herring trawlers — *Accord*, *Starcrest* and *Faithful* — had sailed south to fish for mackerel.

The other important move made in Irvin recently was when it took a 40% share holding in a fish processing factory on the site of Friscoendia's new Glasgow cold store.

With W. S. Unklea, the firm will be mainly involved in handling mackerel, herring, sprats and shellfish, again enabling Irvin to widen its scope to benefit the in-shore vessels it manages and part-owns.

## Gutting

some like it this way....



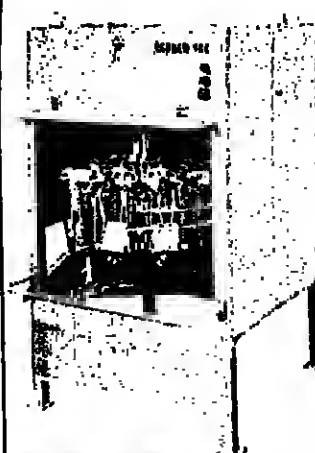
.... But

the expert knows that fish gutted mechanically in combination with a throat cut are better in many respects. By means of the throat cut all main

blood-vessels are cut, good bleeding is obtained, the fish meat gets a whiter colour. The throat cut detaches the collar bones from the head; that is the basis for optimum meat saving heading machine and for filleting machines with highest yield. By means of the throat cut the entrails are separated from the body at the gullet, which leads to a clean gutting result. During the gutting procedure the entrails are only ejected, but not disintegrated. The belly cavity is exposed for thorough washing, and the fish keeps better in storage. BAADER has a full programme of high-capacity and compact gutting machines (optionally equipped with different heading systems).

BAADER 166 up to 2,400 fishes/h of 30-70 cms total length  
BAADER 162 up to 1,680 fishes/h of 50-80 cms total length

BAADER DESIGNS ECONOMICAL MACHINES  
BASED ON MORE THAN 50 YEARS OF EXPERIENCE



BAADER 166  
BAADER 162

## BIG SHIP FOR MEAL

A SECOND 8,700-ton refrigerated carrier has been converted into a fish meal factory ship for Russia at a Swedish shipyard.

The vessels, originally built in Poland, have been equipped with Alfa-Laval centrifugal processing units which will be used to mesh catches — mainly polar cod — and turn them into fish meal.

The meal, packed in either sacks or pressed into pellets, will be stored in the ship's holds. The fish meal will be used for animal feed and the oil by-product is intended for the manufacture of margarine.

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FISH HANDLING, processing and marketing

IF THE Cornish mackerel boom has revealed anything, it is that the shore side of the industry is hardly geared up to handle landings on a big scale.

To see tons of fish making only intervention prices and being carted to meal factories hundreds of miles away is a tragedy — especially when, if it could be stored, there would be a good market for it later on.

The same goes for shellfish in the south-west: thousands of crabs are thrown away in high season because processors lack the capacity to take them.

The small freezing and storage facilities scattered around the county are usually only available to the boats un-

# Cash crisis hits first Cornish freezing centre

der contract to land to them. This is why the news (page 7) that the first public blast freezing and cold store complex in Cornwall — hangs by a fine finan-

dial thread, is a blow to the industry in Cornwall. With the shell of the offices and blast-freezing room built, work has had to stop on the site at Hayle, near Falmouth.

An investment of

£30,000 is needed to complete the £4 million project which would make available 165,000 cu. ft. of storage space.

The man behind the venture is Charles Craze, a driving, enthusias-

tic, former Kseex businessman. No stranger to the West Country, or the fishing industry, Charles Craze previously had a stake in a processing firm at Totnes, Devon — Dart-

side Smoked Fishes.

The need for a cold store in Cornwall was first pointed out by Charles Craze by his ham fish merchant partner in Dartmouth, Charles Newman, who set up an existing store, a new link in the company's frozen food chain will be forged when a main A30 road and processing complex opens in Scotland on April 6. This comes at a time when Mr. Nygren's predictions look well founded. Now, one British home in five has a freezer.

Work has had to stop just as the last phase of building the cold store was to start.

The foundations in concrete floor surface the cold store, which is planned to hold 1,000 tons of produce, has been the main office block. The floor-mounted blast freezers capable of handling 36 tons of fish in a 24-hour shift are scheduled to be installed.

Despite the problems that surround the project, Copperhouse is already fulfilling a need of the local fishing industry with the production of

The firm started in a small way with a 2-ton-a-day Scotsman fish machine mounted on the roof of the blast freezing room. Many local fish firms and boat owners have already started to take advantage of the facility.

It is shortly planned to expand ice production with a 10-ton-a-day German Zeigra machine, claimed to be the first installation of its kind in the country.

Considering the problems that he has had since promised financial backing at the start of the project was not forthcoming, Charles Craze remains remarkably optimistic about the future of Copperhouse.

Since the cash problem was made known, there has been plenty of interest from home and abroad and Charles Craze is confident that he will get the backing he needs.

He told *Fishing News* that, as time has gone by, since he first became involved in the project, he has become even more convinced that Copperhouse would be an important part of the shore-based side of the Cornish fishing industry.

On the face of it, the right. The fish processing development is the result of a link between local fish processors, W. S. Unkle, stawer owners and fish salesmen, Richard Irvin of Aberdeen. The factory was built and designed by Frigoscandia, who retain a minority share-holding in it.

Day-to-day management is undertaken by W. S. Unkle, director of W. S. Unkle.

NO CONNECTION THE UNION Cold Store Co. Ltd. would like to point out that the recently unveiled Dartmouth Cold Store is no way connected with the firm, Union Cold Store Co. 32a Rose Lane, Norwich, NR1 1PN.



Charles Craze, the man behind the Copperhouse project. It is already supplying local...

FISH HANDLING, processing and marketing

WHEN A £5m expansion programme for cold storage in the United Kingdom was announced back in 1974 by Frigoscandia Ltd., it was based on the belief that there would be a big increase in demand for frozen food in this country.

At that time, managing director, Gunnar Nygren said, that although Britain lagged behind the United States and Scandinavia in frozen food consumption, it was a market set to take-off. He pointed out that only one home in nine in Britain had a freezer, compared to one home in two in the United States of America.

Although much of this latest expansion by Frigoscandia has been taken up with additional facilities at existing stores, a new link in the company's frozen food chain will be forged when a main A30 road and processing complex opens in Scotland on April 6. This comes at a time when Mr. Nygren's predictions look well founded. Now, one British home in five has a freezer.

Set on a ten-acre site, the cold store and a fish processing factory are regarded as only the first stage of development at Bellshill. The next

phase could well include fast freezing facilities on site.

The base for Frigoscandia's first move into Scotland has been carefully chosen. Set just outside Glasgow, at Bellshill, it is a short distance

from the M8 Glasgow-Edinburgh motorway, the M73 Glasgow ring road and the M74 Glasgow South motorway.

By moving into Scotland, Frigoscandia believes that it will be able to further strengthen its links with the fishing industry.

In charge of the Bellshill site is Eric Dunkley, who was formerly general manager of the largest cold storage and freezer centre in the Frigoscandia chain, at South Kirby, Yorkshire.

When the first trucks roll up at the gates of the Bellshill store, their papers will precede them in the control buildings which overlooks the loading bank, via an underground despatch system. The loading bank will be able to handle eight trucks at a time.

The loading bank control

building incorporates offices as well as showers and warming rooms.

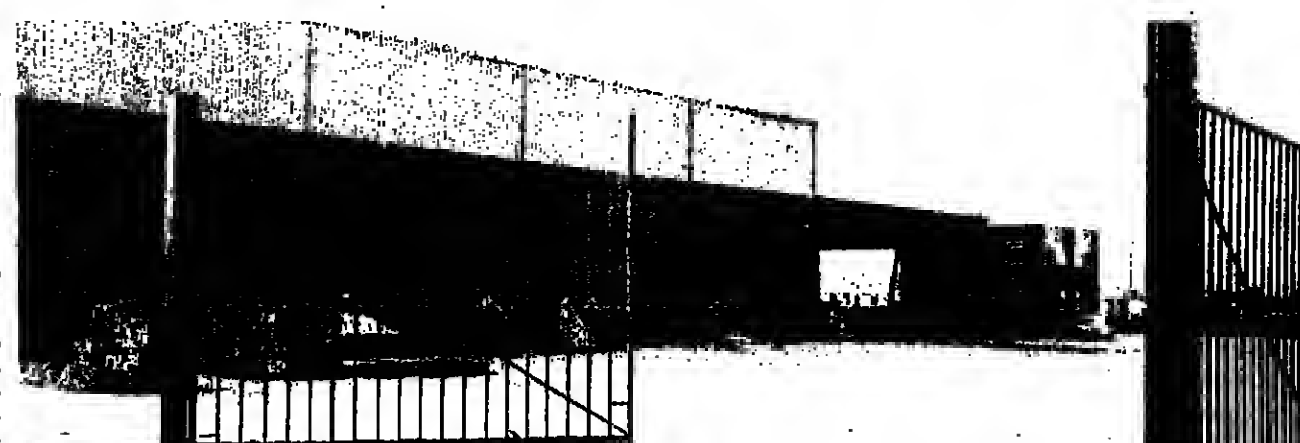
In the engine room of the cold store are three J. & E. Hall compressors, with space for more in the event of expansion. The refrigeration system is to Frigoscandia's own design and the cold store will operate at -30 deg. C, using ammonia as a refrigerant.

Inside the cold store building, which can hold up to 10,000 tons of produce, a special colour-proof chamber has been set aside for fish. There is storage capacity for 2,000 tons of fish but, Eric Dunkley was emphatic that no wet fish would be handled over the loading bank.

The store is clad with FRIGOPANEL insulation which is Frigoscandia's own patented system and incorporates 5 in. expanded polystyrene.

The first fish to move into the new cold store will be from the fish processing factory set up on the site and built by Frigoscandia at a cost of £300,000. This unique development, which also involves two major Scottish fish firms, is described below.

# Cold store ready for blue whiting



Frigoscandia's 9,000-ton cold store opens in under two weeks. The store plus fish factory is on a 10-acre site.

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## COPPERHOUSE COLD STORE

(CHARLES CRAZE LTD.)

ACCELERATED FREEZING AND COLD STORAGE

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### ANNOUNCEMENT

IN THE NEAR FUTURE WE WILL BE PLEASED TO ANNOUNCE THE OPENING OF AN ACCELERATED FREEZING PLANT AND COLD STORE IN CORNWALL.

Services available to all will be:

- ★ Blast Freezing up to 30 tons a day.
- ★ 165,000 Cu. Ft. of Cold Storage.
- ★ 12 tons of flake ice a day (now available).

Enquiries are welcome

## Bigger blast on shrimps

A PETERHEAD shrimp firm is planning a big increase in its blast freezing capacity. The rapidly expanding firm, Shrimp Pools (Scotland) Ltd., a subsidiary owned by the Bellamy family of Aberdeen, has established an extensive international market for its frozen products.

It recently ordered a Lewis Double-Flow system with a capacity of 1,500lb. per hour, which is five times larger than the original system also from Lewis of Norwich.

The unit will be used primarily for freezing shrimps and fish fillets, but other products will be processed from time to time. The fillets, automatically transferred from filleting and inspection benches to loading platform, are hand-fed on to the freezing belt to ensure proper separation.

The top belt of the Double-Flow quickly "crusts" freezes the outer layer which ensures no loss of moisture, keeping weight reduction to a minimum.

Once on the lower slow-running belt, freezing is completed and an IQF and free-flowing product is produced. Air velocity then gently lifts the fillets away from the belt. Finally, the frozen fish is discharged at the same end as it enters: down a stainless steel chute on to a conveyor and transported to the packaging area.

For further information, contact: Lewis Refrigeration Co., 32a Rose Lane, Norwich, NR1 1PN.

Above left: shell of the office and blast freezing room, with the site for the cold store alongside. Above: Interior of the unfinished blast freezing room.



## FISH FACTORY ON SITE

UP TO 240-tons of fish a week can be handled in the new processing factory now operating at the Bellehill site.

Herring from Scotland, mackerel from North Shields and mackerel from Cornwall, all mainly destined for overseas markets, have passed through the plant since it opened last October.

Fork lift trucks bring fish into the factory where it is washed, graded, filleted and frozen. A battery of German processing machinery is installed, including Bander's 145 fish grader and washer and four Bander 33 filleting units.

Fish is frozen by four Jackstone Frator vertical plate freezers linked to Stal-Levin compressors.

So far, filleting has been restricted to herring.

With the temporary closure of herring fishing by the Scottish fleet and the winter mackerel season tailing off in Cornwall, the new factory — in common with other processors — could be facing a difficult supply problem.

and the factory works on a round-the-clock basis. On an eight hour shift, 200 units of herring can be handled.

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REFRIGERATION SYSTEMS

ICE MAKING PLANTS

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- ★ Complete, compact and simple refrigeration plants for fish hold cooling.
- ★ Complete systems for R.S.W. tank installations.
- ★ Complete ice making plants for ship-board or shore use 0.5 to 5 ton per day capacity.

Installation and servicing in all major ports by leading refrigeration engineers.

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FISH HANDLING, processing and marketing

TRAP FOR INSECTS

THE Nimrod 1200 looks like a neat light fitting... in fact it's a trap for flying pests.

Lured by the light from two small ultra-violet tubes, the pests pass through a protective metal grid and come into contact with an inner 'live' metal grid. Harmless to humans and domestic pets, it stuns insects to death.

The unit is concealed by a shade which also forms a tray for collecting the insects. Held magnetically in position, the shade can be removed for emptying. As the tray is removed, a trigger automatically releases the voltage on the inner grid is discharged.

Standard models include the Nimrod 1800 for smaller commercial premises, restaurants; Nimrod 3000 for small factories; Nimrod 4000 for large factories; and the Nimrod 800 portable mains/battery-operated, rechargeable unit.

The Nimrod range was tested during the Zaire River

Below: Simpson fish washer being sold through exhibitors.

product line

PLASTIC DRUMS

BOWATER Packaging Ltd. will be showing plastic drums at next month's Scottish Fisheries Exhibition at Ayr. The show runs from April 28 to May 2.

The firm's International range of open-top Meuser plastic drums are already used extensively by the largest fish exporter in Ireland, South Coast Fishery Ltd., for the curing in brine and distribution of herring.

The International open-top range comprises 50, 60, 120

and 210 litre capacities made from high density polyethylene. The 60 and 120 litre drums correspond to the half and full barrel sizes used in the industry.

Lids are in polyethylene, incorporating a gasket, and have a galvanneal steel looking bend plus louver closure. The 60 and 80 litre sizes are supplied with a pair of drop handles.

Bowater's Hydrotax PE fish boxes are also to be on display. Hydrotax PE is a polythene-coated solid fibreboard specially developed for fish packaging. It is claimed to be able to take rough handling, outside storage, prolonged soaking or even immersion without deterioration. Hydrotax PE fish boxes come in sizes from 1/2 to four tonnes.

Bowater will also be showing 'Tight Head' Meuser plastic drums, which are super-spread lacquer-lined steel drums for many shipments of liquids and chemicals.

Further information from: Bowater Packaging Ltd., Portland House, Stag Place, London SW1E 6DJ.

PORTABLE WASHER

THE COMPACT Simpson fish washer is being used aboard boats in the Caithness area of Scotland with good results.

The patented washer, made in glassfibre and mounted on a steel stand, measures 3 ft. x 2 ft. x 1 ft. Standard hose connections can be used and the

unit is stowed when not in use. The washer is being produced by Thurso Fibre Glass Ltd., of Thurso, Caithness, which claims it will not rust or rot. Also, it pays for itself quickly (because cleaner fish sell for higher prices).

Fishermen using the machine have commented that they save the back-breaking job of manually washing fish in baths and they will wash head, dock, skate, plaice, cod and prawns.

The Simpson fish washer is being marketed through ship chandlers and quillies for a White Fish Authority grant.

SPIRAL FREEZER

A GYROFREEZE Midget compact spiral freezer, along with a Push Through Tunnel bleet freezer, has been supplied to Port of Spain, Trinidad.

The machines are to be used by National Fisheries, which is undertaking a major development programme.

National Fisheries was formed in 1972 as a shrimp, fish and processing operation. Since then, however, it has diversified its product range, processing activities and expanded its trawler fleet. The development programme will be completed in 1977 and involve an investment of around £5 m.

Frigoscandia, the firm which makes the Gyrofreeze, has been engaged under a consultancy contract for the design, supervision and purchasing of refrigeration equipment, a 60-ton a day ice plant and electrical control gear.

The Gyrofreeze Midget requires 180 sq. ft. of floor space. It has an hourly capacity of 800-2,200 lb. (300-1,000 kg.) and a freezing time of between 10 and 180 minutes.

Above: not a light fitting but a trap for flying insects. A tray ensures the dead insects are kept safe.

ICE FIRM EXPANDS

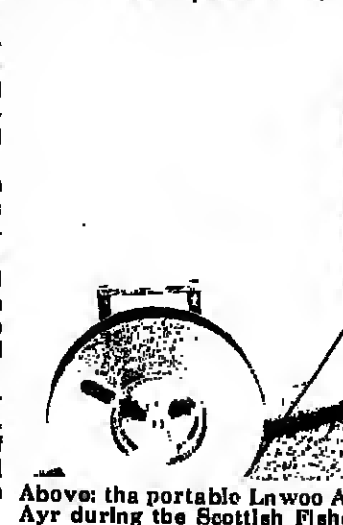
THE ENGLISH subsidiary company of the German Inco-Ziegler ice plant firm has recently expanded and moved to new premises.

The firm, Inco-Ziegler (UK) Ltd., is now at Willmow House, Water Lane, Wilmslow, Cheshire, and is a wholly owned subsidiary of the main firm based at Hannover.

It can supply the packaged five and ten ton capacity ice-making machines which are now being used in the UK fish industry.

The firm has also developed ice storage and handling systems, with metering and delivery devices, which enable it to offer complete ice systems to fishing ports.

Machines suitable for use in fish factories, retail shops and laboratories are also made, including 'space-saving' models. Units with outputs from 88lb. to 150 tons a day are available.



Above: the portable Lawco Avistrop machine to be used during the Scottish Fisheries show.

'LOW-COST' STRAPPER

A STRAPPING machine designed to streamline packaging operations will be shown at the Scottish Fisheries Exhibition next month by the Avistrap Ltd.

Centrepiece of the stand is the new Avistrap APM-2A Avistrap, which has been designed to be used with stringent hygiene requirements.

The machine is simple to apply, tension and heat in one operation — a single inert polypropylene strap takes up to 15-18 seconds to move between work areas.

Priced at under £2,000, the machine is available in a range of sizes to suit most cooling needs.

The APM-2A can also be integrated into automatic line systems using electric cables.

There is also a range of hand tools, including tensioners and combi tools.

Because of the polypropylene strap made from pure polypropylene, and its strength, the machine is suitable for use in cold storage.

Choosing the right ice

WE HAVE formed a fishermen's co-op and intend to install ice-making machinery in our premises near the wharf.

"We should like as much information as possible about the different types of ice used for cooling fish and about machinery manufactured in England to make them."

I think that the most authoritative information about the various types of ice used for cooling fish is contained in a Torry Advisory Note called: 'Which Kind of Ice is Best?', written by J. J. Waterman, and that the following extracts from it will give you most of the information you require.

There are two principal kinds of ice — block and small ice. Blocks are made in a variety of weights ranging from 55 lb. (25 kg.) to 300 lb. (136 kg.) with a minimum thickness of 7 in. (178 mm).

Small ice is produced in many different forms — snow, powder, flake, cube, scale, plate, tube and ribbon, to name a few.

The two most important types of small ice may be classified roughly as (i) flakes, which are smooth pieces that are either flat or slightly curved and (ii) cylinders, which are pieces cut from long, hollow tubes of ice formed inside refrigerated pipes of small diameter.

Despite arguments about whether natural ice is better than artificial ice or whether stored ice is better than newly made ice, the difference in properties of ice of different origin are so small that they are of no significance to those using ice for cooling fish.

Ice in small pieces made by different methods will have different densities; a ton of crushed block ice may occupy only 56 cu. ft. (1.6 cu.m.), a block ice as the pieces are ton of cube ice 68 cu. ft. (1.8 cu.m.), and a ton of flake ice 75 cu. ft. (2.1 cu.m.).

The size of particle, within limits, in any one type of ice makes little difference to either its melting rate or the rapidity with which it cools fish; block ice finally crushed runs away no more swiftly than the same ice coarsely crushed.

Ice whose pieces are different shapes, however, do have somewhat different characteristics.

Large pieces of crushed block ice, when compared with flake ice, make poor contact with the fish they are meant to cool, and may melt less rapidly; this is not necessarily a disadvantage for three reasons.

Crushed block ice, especially when the pieces are fairly large and coarse, can mark and bruise fish more than smooth, flat pieces of small ice.

The manufacture and use of small ice has a number of advantages. The plant takes up relatively little space, can be fully automatic and needs little maintenance.

Much smaller sizes of units are available than for block ice manufacture, and therefore are of particular value in small users remote from large ice factories — your co-op, for instance.

The flat shape of flake ice can make transfer of heat from fish to ice more rapid. Flakes are small and smooth and therefore do little damage to fish.

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The Scotsman SF-8 can produce up to 1,814kg of flake ice every 24 hours.

A greater weight of tube ice than of flake ice, with consequently greater cooling capacity, can be accommodated in a box of fish although it will probably melt more slowly than flake ice under similar conditions.

Flake ice is likely to be most useful where a warm product needs to be cooled rapidly, for example fish from the sea being stored in a trawler's fish room.

Tube ice, on the other hand, will provide more cooling capacity in a small space than flake ice and will continue to cool slowly for a long time in a warm atmosphere; it should thus be more useful for keeping fish cool in transit, for example chilled fish in uninsulated containers consigned inland.

From all this you will gather that flake ice has some advantages over crushed block ice as the pieces are smaller, cause less indentation and melt more rapidly; that tube ice has properties somewhere between the two; and that for manufacturing quantities in remote localities like yours, a small-ice plant is likely to be best.

Advantages of small-ice plants are that they can be built up gradually by acquiring ice-making machines as and when there is a demand for them and funds permit.

Many such plants have been established by acquiring Scotsman ice machines one at a time and replacing them one at a time — a procedure which ensures continuity of production.

Most popular for plants like the one you propose are Scotsman Super Flaker SF-8 and Modular Flaker MF5 series ice making machines and systems.

SF-8 series machines, which cost comparatively little to install and operate, are water cooled and capable of producing up to 1814 kg. of flake ice every 24 hours.

They can be installed in a back room, upper floor or basement and will transfer ice to the bin from wherever they are positioned. The bin is, therefore, occupies valuable floor space.

Full particulars of these machines and systems are obtainable from Hubbard Refrigeration Ltd., Hilview, Otley, Ipswich, Suffolk.

LONGLINE BAIT IS AVAILABLE

SINCE I offered, on January 30, to put any reader in need of longline bait in touch with suppliers, it has become evident that considerable quantities of mussels are available all the year round.

Suppliers on the west coast of Scotland, in Lancashire, Wales and Devon are willing to supply them regularly in quantities of up to a tonna a day.

Clams

Other types of bait can also be supplied in appreciable quantities at any time of year; clams from the south coast of England and lugworms from Northern Ireland.

The supplier on the south coast isn't sure whether his

John Burgess' Log



clams would be suitable for longline bait, but suggests that they might be suitable for baiting prawn and/or whelk pots. He can supply about four tonnes a week.

The supplier in Northern Ireland could supply lugworms in quantity if he could be sure that they would reach ports in England, Scotland or Wales alive.

Put in boxes half-filled with clean sand and wat seaweed, you would think they would reach some ports alive. The way to make sure, I suppose, would be to arrange a trial consignment.

Names and addresses of these suppliers will be forwarded to any reader who will enclose a stamped, addressed envelope.

We are in fish



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all stores approved for handling herring  
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appointments

KEITH ASHLEY (43) has joined the board of directors at Young's Seafoods. He was general production manager prior to his new appointment as production manager. A native of Grimsby, he began his career in the seafood business as a management trainee with MacFisheries. He joined Young's Seafoods in 1966 on the distribution side, being promoted to production manager in 1970. When announcing the appointment, Norman Young, chairman of the Young Group, said: "Keith Ashley has contributed a great deal to the overall progress of Young's in the 10 years he has been with the company."



Keith Ashley

PATRICK CROAN has been appointed a director of Christian Salvason (Seafoods) Ltd., the company responsible for fish and fish meal operations in the Christian Salvason group. He remains managing director of R. Croan & Sons Ltd., Edinburgh, a group member which last year won The Queen's Award to Industry. Robert Croan has been appointed director in charge of production at R. Croan & Sons Ltd.

GEOFFREY BATTSON is to succeed Tom Phillips as chief executive/secretary of the London Fish Merchants' Association on May 1. Mr. Phillips is retiring on that date after some 35 years with the Association.

THE 'King Frost' sales team of Associated Fisheries and Foods has been strengthened by three new appointments. Roderick Bird (35) has been made sales training manager for all sales divisions and telesales staff. Mr. Bird joins AF&F from Heinz, where he was responsible for the training and development of the

catering sales force at Simpsons (31) is the northern key account manager, Catering Sales, with responsibility for the major catering accounts in the region. He has experience in catering, having been a catering assistant with flake ice, make poor contact with the fish they are meant to cool, and may melt less rapidly; this is not necessarily a disadvantage for three reasons.

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that's miles better  
than anything  
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- 45-5% less scanner weight than the Decca 110
- 50% more range scales than the Sperry Mark 7
- 50% less units to install than the Konei KRA221

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